



1912 · EDITION OF HOME BUILDING AND DECORATION



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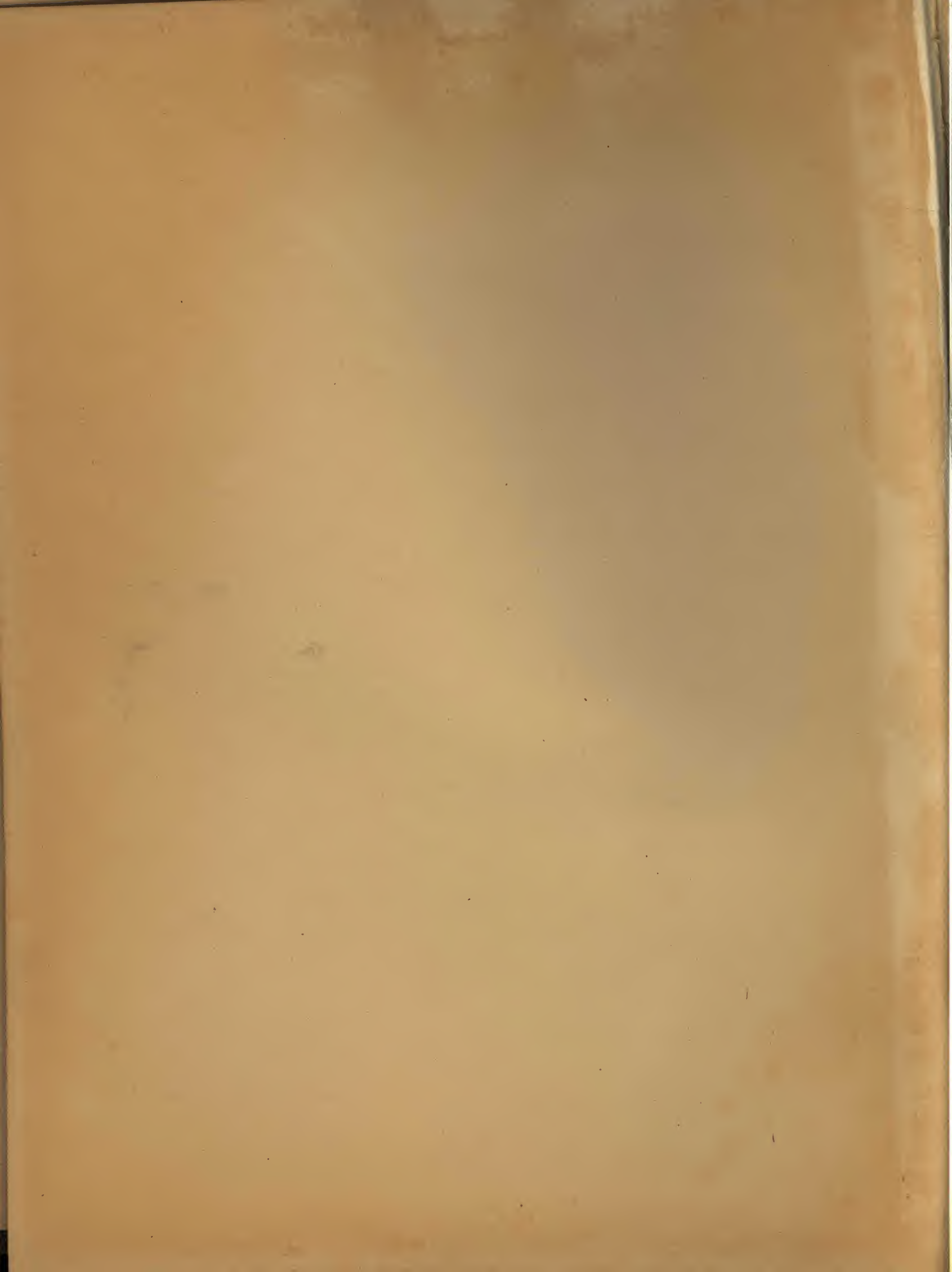
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Designed by Shirley Wainwright, London

ENGLISH ENTRANCE HALL



BOOK OF HOME BUILDING AND DECORATION

PREPARED IN CO-
OPERATION WITH
AND UNDER THE
DIRECTION OF THE
LEADING MANUFACTUR-
ERS OF THE COUNTRY

BY

HENRY COLLINS BROWN

CLARA BROWN LYMAN
EDITOR

Decorative Designs by
FRANKLIN EDWARD BITTNER

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GARDEN CITY, NEW YORK

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NEW YORK
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How This Book Came to be Written

EARLY in the spring the annual question of improving the house came up. This has always been more or less of a serious matter financially. The task of doing over a room or replacing some worn-out fixings is not with us a mere matter of sending for the decorator.

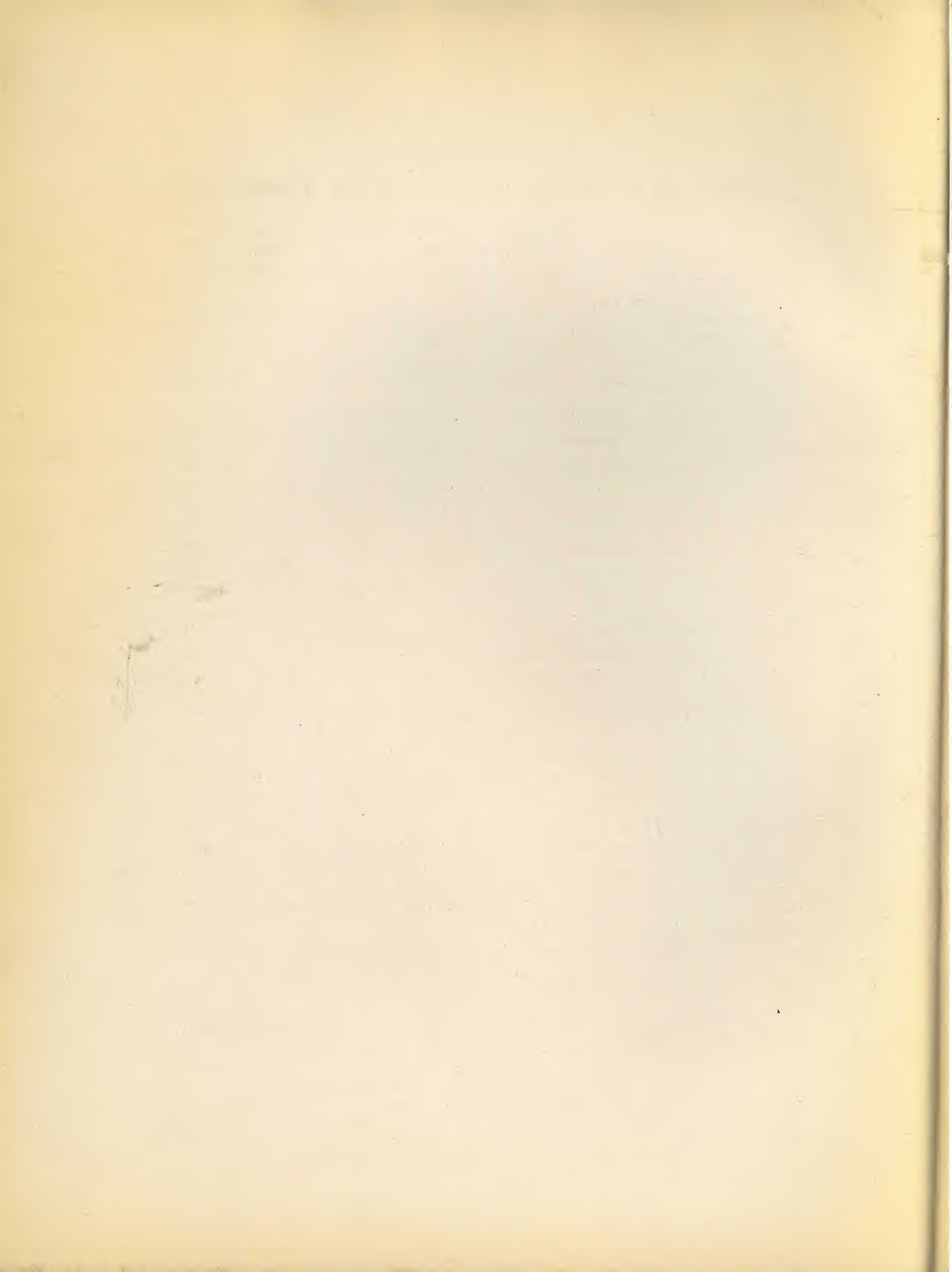
Recourse was had, therefore, to the pages of our favorite periodicals and letters were dispatched to various firms making the articles which we desired to purchase, asking for their literature. In due time catalogues, circulars in endless variety arrived. The amount of valuable information thus received was amazing, and the illustrations were all that could be desired.

Right here came a curious experience. It was not always convenient to examine the catalogues the moment they came in, and they were invariably placed aside for perusal at a leisure time. When that blissful moment finally arrived, something always happened to the catalogue we most desired to see. It was either lost, mislaid, or had been borrowed by a neighbor. Valuable time was thus consumed and the resulting annoyance created a state of mind which did not lead us to that consummation so much desired by the manufacturer and ourselves—the prompt selection of the goods we wanted and a quick sale. Progress was so slow that I was on the point of throwing them in the waste basket and giving up the whole scheme in disgust. That, however, did not seem to be quite right to the manufacturer. It was self-evident that he had gone to great expense to prepare his material in a way that would truthfully describe his wares and make it easy for me to buy intelligently; nor could I dissuade myself from the fact that I was not parting with a great deal of useful information. But to wade through that disordered mass every night was more than I could or would stand. After some thought, I decided to buy a scrap book, classify the different items, and paste them in under the proper heading.

When the book was completed, I was astonished at the ease and rapidity with which I could refer to the different articles and how much more interesting the compilation was, compared with the loose collection. I was able to study each subject carefully, institute comparisons, and otherwise properly inform myself of what I desired to purchase. The only regret I had was that I bought more than I originally intended, but that seemed inseparable from the new arrangement. So many indispensable things were offered, and in such orderly manner that the work became a pleasure rather than a task. The collection was also much in demand by my neighbors, and its popularity suggested that it really had a useful place in this busy world of ours.

I spoke of this experience to several large manufacturers who carefully watch new developments in advertising, and, to my great surprise, was urged to extend the work and make it really comprehensive. From this it was but a natural step to seek a publisher of national reputation.

THE AUTHOR



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Its Ornamental and Practical Value

Designs by Leading Manufacturers



MORE attention is now being paid to the consistent use of artistic hardware than at any previous time in the last decade. Hardware as applied to house building means fixtures and trimmings such as knockers, knobs of all kinds, window catches and handles, key plates, locks and latches, newel post balls, escutcheons, etc. The whole scheme of decoration and architecture is to be taken into account when a selection of hardware is made. A Colonial house is fitted with strictly Colonial fixtures; an Empire room with hardware made especially to conform to that period. A Louis

XV room presents a strange contrast to the eye of the layman, as well as to that of the connoisseur, if it is fitted with hardware designs that are a part of the period of the Empire.

A small dwelling is apt to receive less attention in these matters than a more pretentious house; but the manufacturer shows designs in period hardware suited not only to the palatial home, but to the simple and unpretentious.

It is possible, of course, to buy neutral designs that will fit any style of furnishing; but the general trend nowadays is toward specialization, and the whole artistic effect is much enhanced by a consistent adherence to the special period or school followed in the architecture and decoration.

The local hardware dealer and the carpenter are not as a rule very well educated as to the period styles, even if they know the output of the good manufacturers. Therefore it is much more satisfactory when it comes to the point of providing hardware for the house to have recourse to the catalogues as a guide.

In making the selections it is advisable to consider the finish of the lighting fixtures as well as the woodwork of the room, in order to secure perfect harmony in the fittings. The small hardware can be secured in any of many metal finishes, to match fixtures and to tone in with woodwork.

In addition to the great number of stock patterns which the manufacturers show, special designs may be carried out to suit individual taste, and a crest or monogram is often reproduced as a distinctive feature on a plain flat surface.

It is hardly necessary to suggest to the prospective purchaser the advantage of providing a sufficient fund to purchase *good* hardware; for most of us have had experience with doors and windows that do not latch properly, and with keys that do not work.

Wear and tear should be considered in buying hardware for any kind of a building, inside or out. Durable locks and trimmings that will stand all kinds of



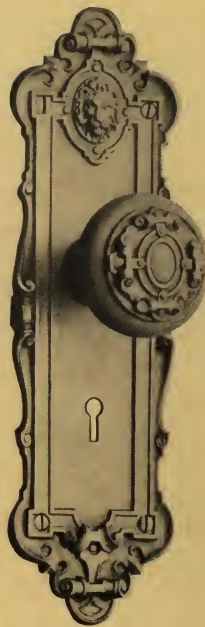
Colonial (Priscilla)



Rococo (Nuremberg)



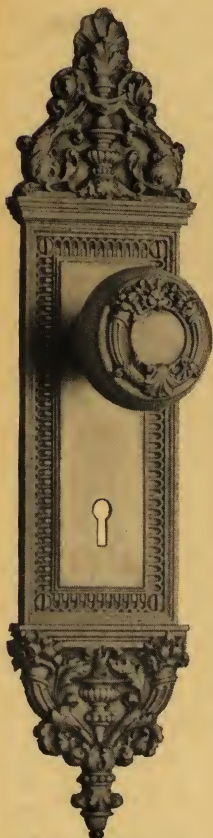
L'Art Nouveau (Napo)



Flemish (Leyden)



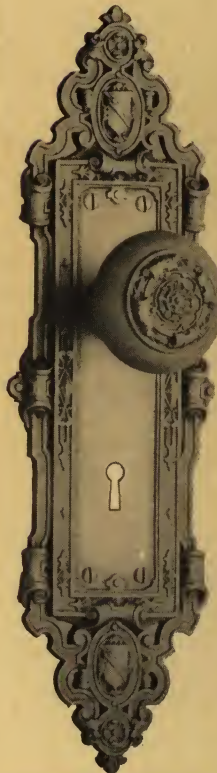
Louis XVI (Antoinette)



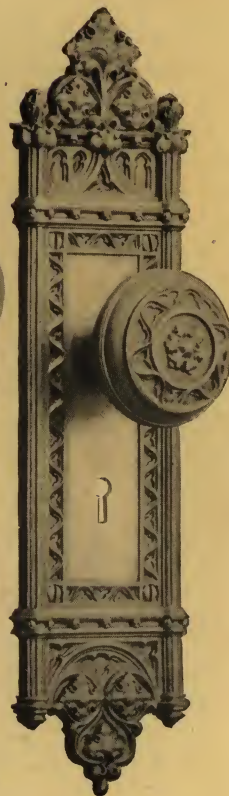
Italian Renaissance
(Bramante)



French Renaissance
(Grenelle)



Elizabethan (Kenilworth)



Gothic (Burgos)

A GROUP OF PERIOD DESIGNS IN HARDWARE—MADE BY THE RUSSELL AND ERWIN MFG. CO.,
NEW BRITAIN, CONN.

usage are selected by careful people. Usually the more expensive the building, the better the trimmings; but often houses of moderate cost are handsomely trimmed: in fact the trimmings are so near one's eye in the smaller room that they are of utmost importance.

A good latch and lock is a good investment, always for the outside doors—and always for those within. Attention to this detail in ordering hardware will prevent trouble in the future, as well as locksmith or carpenter bills for tinkering with doors that refuse to latch or lock.

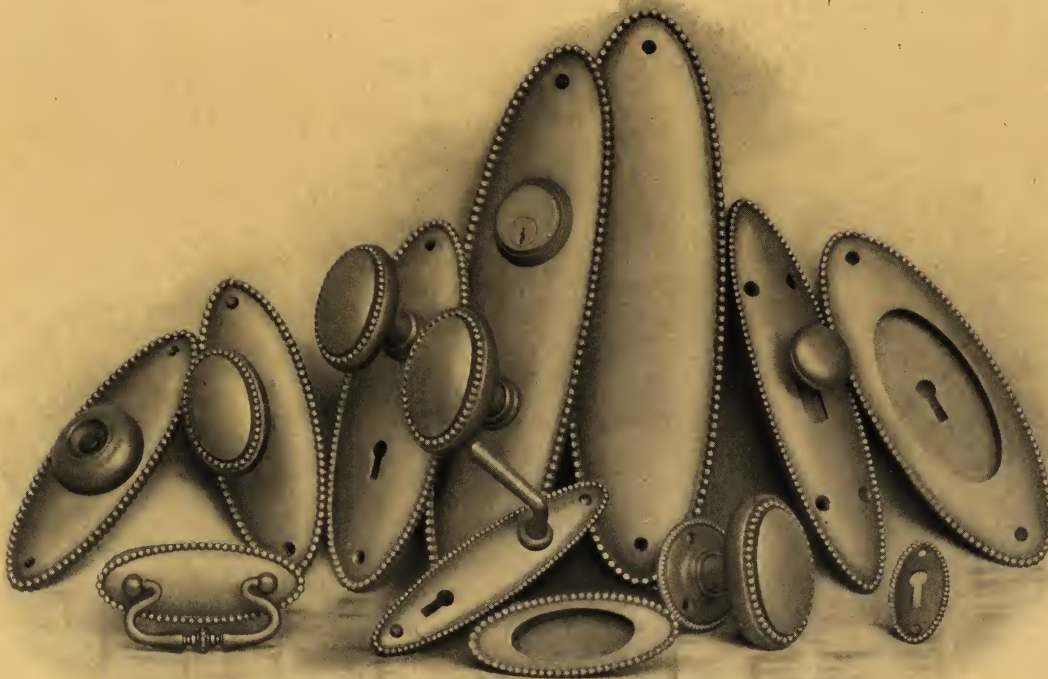
To the present popularity of Colonial architecture is due the return to favor of the glass knob for indoor use. Equally effective on either hardwood or painted doors, it is, when properly constructed, the ideal knob for Colonial work—highly ornamental, and as serviceable as it is ornamental.

While generally used with the round rose and separate plate escutcheon, glass knobs can be furnished with elongated escutcheon of any desired pattern.

Glass knobs are made of both cut and pressed glass and in great variety of shape and pattern. Small sizes are also made for cabinet, sideboard or table.

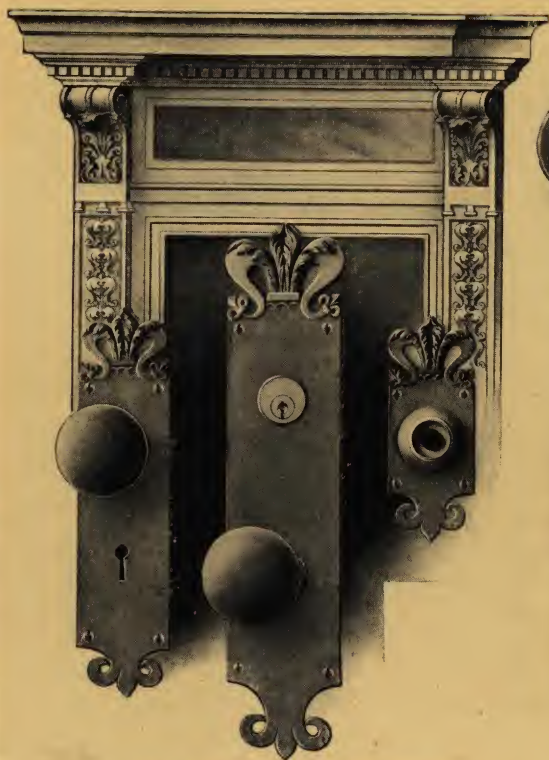


A Sargent Colonial Door Handle



A Colonial Group

SARGENT HARDWARE—MADE BY SARGENT & CO., NEW YORK



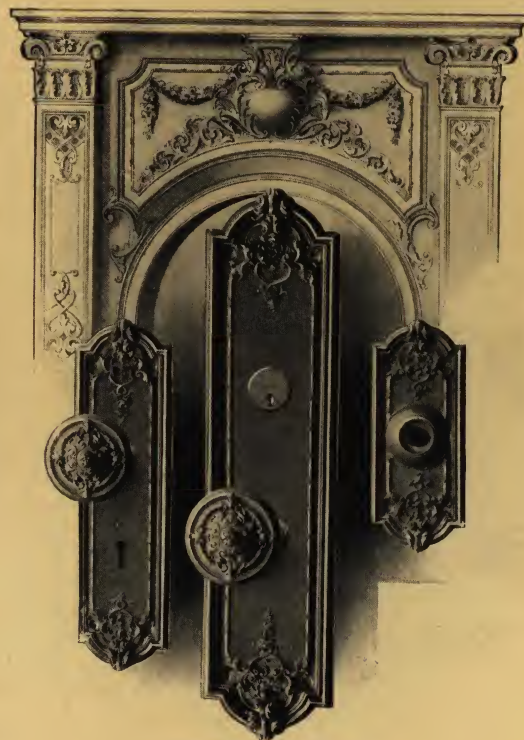
Early French Renaissance (Bourbon)



Colonial Glass Knobs



A Group of Colonial Door Handles



Louis XIV (Nemours)

A TYPICAL ASSORTMENT OF CORBIN DESIGNS—MADE BY P. & F. CORBIN, NEW BRITAIN, CONN

The glass knobs usually come accompanied by metal rose, ornamented as desired. With the glass knob the glass lever handle is much used, and is a handsome and unique addition to the furnishings, with its metal base and tip conforming to the other metal work in the room.

Another return to the styles of Colonial days is the hand-painted porcelain knob. This is dainty in the extreme, and may be secured in various patterns to harmonize with the other furnishings. These are used extensively with white-painted or enameled woodwork. Special designs may be supplied to suit the purchaser, with a slight increase of cost.

Attractive French casement windows require unusual fittings, the cremorne bolt being especially suitable, whether the window is operated from one or from both sides.

A door check is usually a necessity on the doors between dining-room and pantry, and pantry and kitchen. A check on all outside doors is recommended by people who have tried them. The check may be removed for summer, and in winter it will be found a very useful servant, especially in houses where children are continually running in and out. It is also a good plan to provide the bathroom door with a check; but when this is done provision should be made for fastening it open when desired. The double swing door for the pantry and kitchen is desirable.

The question as to the amount necessary to spend on house hardware is a difficult one, and one upon which it is hard to put a limit. General help only, can be given at the outset. The interest in the whole house so increases as completion approaches that one's interest in the metal trimmings increases also. It is wise, therefore, to make as generous a selection at first as is possible.

It is a common error of house builders to allow too little money for the hardware; the result is that while the doors and other woodwork may be handsome, the metal trim does not correspond. The house builder is earnestly advised to keep this in mind.

The modern substitute for the door latch of ancient days is equally burglar proof, if one takes care in selecting the proper lock.

The lock is the defense of the home, and the proper selection of the ornamental trim is an important factor in the decorative treatment.

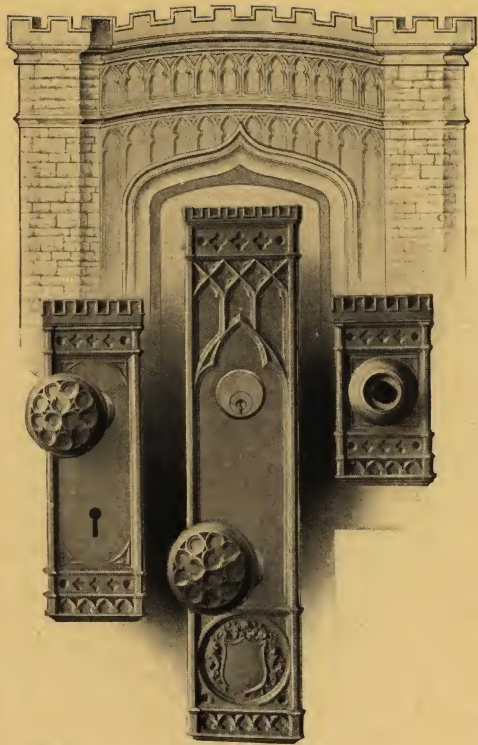
Few people know one lock from another, except by outward form; whereas the price charged is based principally upon the interior construction. In like manner the security of a home is based not upon the outward form of the knobs or escutcheons, but upon the interior construction of the lock. Few houses are broken into, in the true sense of the word; most of them are entered by picking or forcing the lock. It therefore behooves us to select that form of lock which is most nearly proof against picking and forcing.

To select the most suitable trimmings one must know something of the styles of the different periods, so that Colonial hardware will not unwittingly be used when the furnishings are of the dainty and delicate Adam or Sheraton designs.

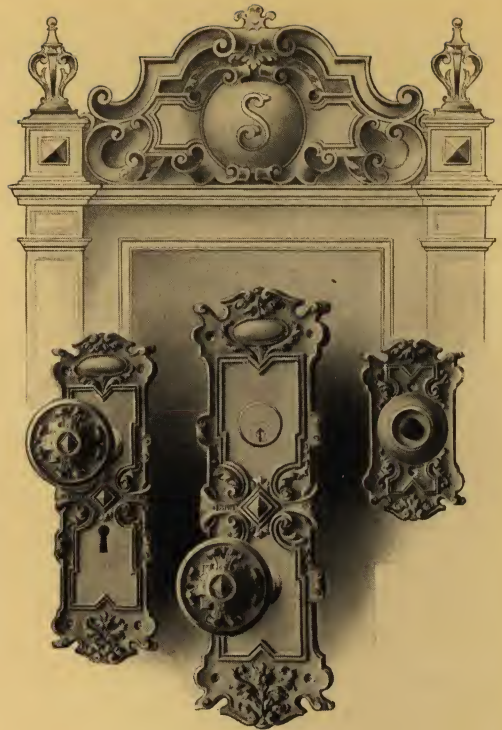
If you build a house to sell, it is well to have it finished with artistic hardware, for points which may seem small to you are large to other eyes.

A very important point to be considered by home-builders is that the order for the hardware should be placed early. This should never be postponed until the house is ready for the trimmings.

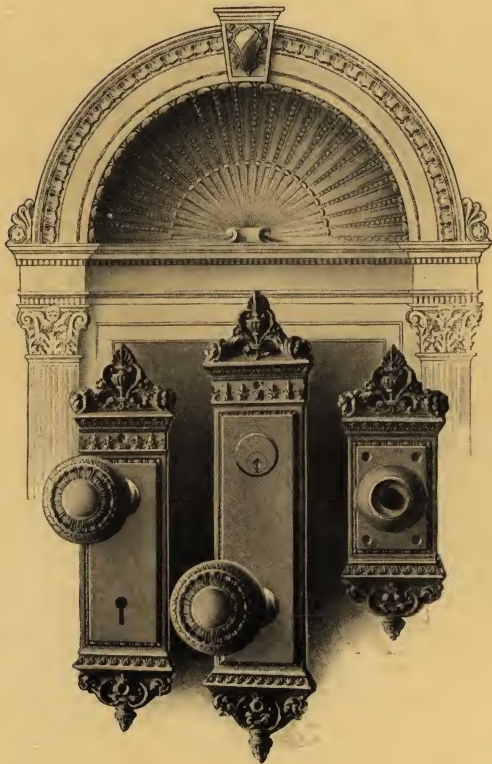
It is a common practice in providing hardware for the new home to defer its selection until a late date, and then to leave the matter, both as to the amount to be expended and as to the selection of the fittings themselves, largely in other hands than those of the architect or owner. This is an error which may easily be rectified by a little forethought, with the aid of the catalogues of the manufacturers.



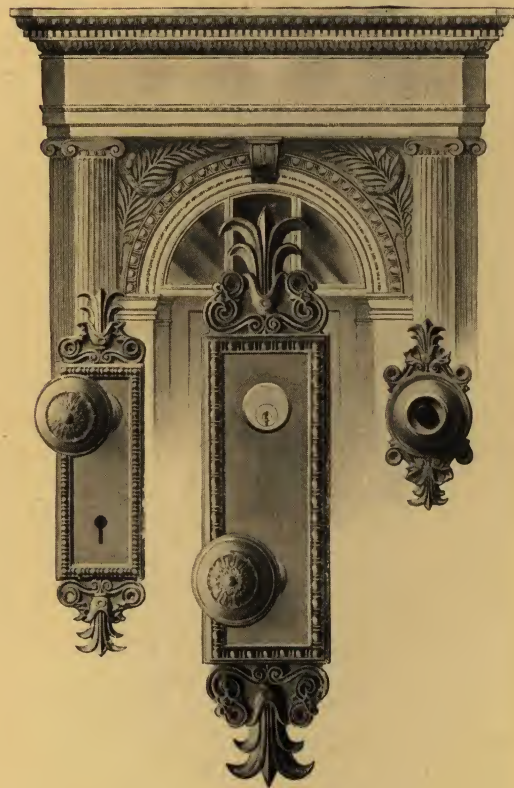
Gothic (Hampden)



Flemish (Ghent)



Italian Renaissance (Orvieto)



Greek (Olympus)

CORBIN ART HARDWARE, PERIOD DESIGNS—MADE BY P. & F. CORBIN, NEW BRITAIN, CONN.

If you are selecting your own hardware, note the chief characteristic of your house, and choose accordingly. A heavily built house with heavy doors needs the heavier forms of hardware, while the house of a lighter build needs the metal work of more delicate construction.

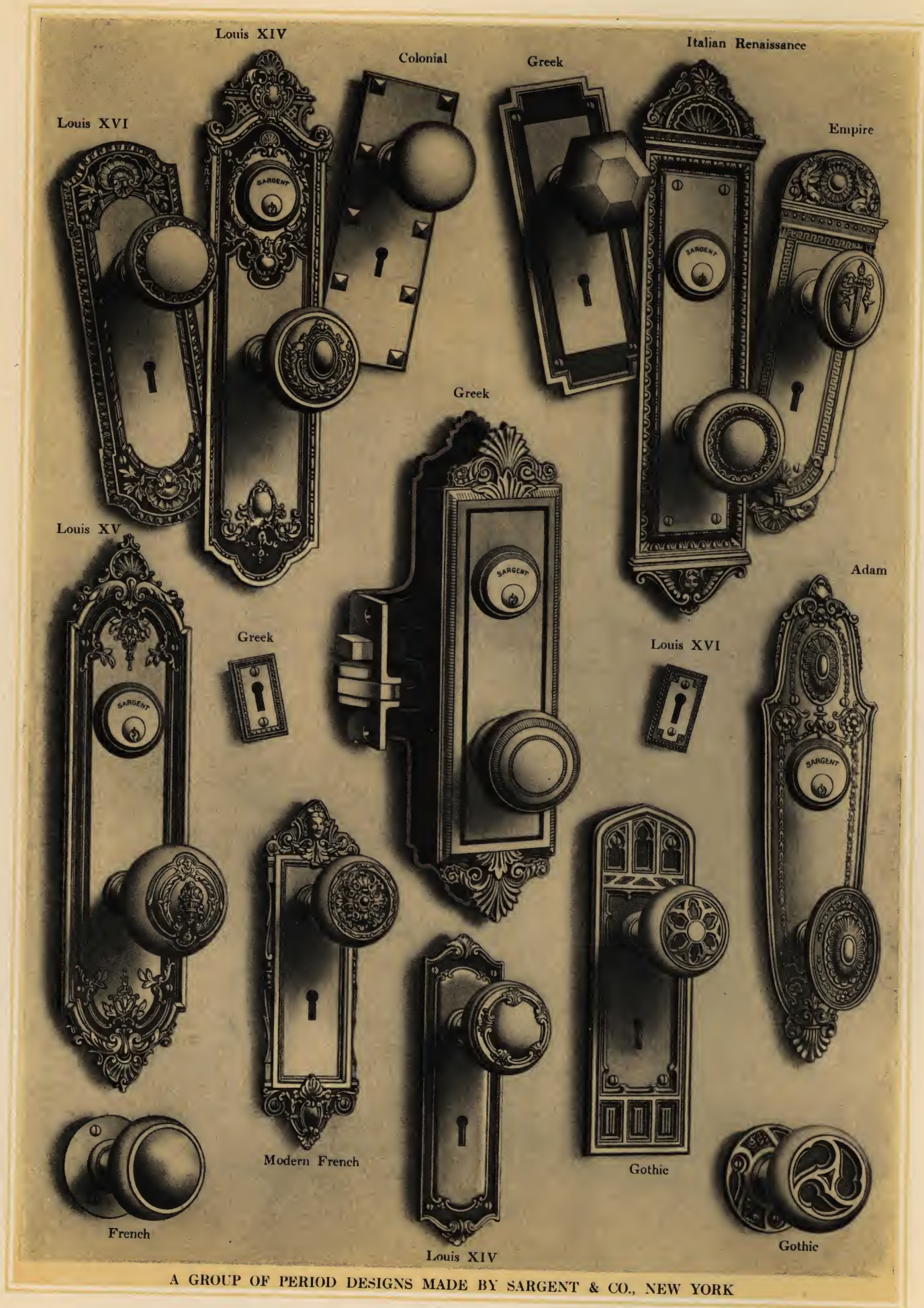
The charm of a Colonial door knocker for the main entrance to the house, and the old style thumb latches and quaint rim locks of our American ancestors, almost persuade one to build a strictly Colonial house, were there no other inducements. To-day, in all forms of houses except the pure Colonial, the bell trimming gives chance for the working out of the special-period design.

The different schools of design in metal work are closely associated with the wood carving and the art of the period. The "Adam" school was developed by the brothers Adam in London. It bears some resemblance to the French of Louis XVI, and is distinguished by the conventional use of the classic bud and pearl or bead in delicately outlining large patterns, such as ovals, circles and their smaller divisions, often joined by rosettes. The spandrels, or spaces between, and panels, are generally ornamented with wreaths or with palms and foliage. The style is marked by delicacy of pattern.

The Colonial school, generally speaking, covered the first half of the seventeenth century, reaching its highest plane after 1730. From Italian, French and English sources its growth can be traced, until in America it covers a broad field. As a rule it is distinguished by the free use of the classic forms, even Greek forms, in New England and the South, and by reedings, flutings, beadings, egg and dart mouldings, the acanthus, dentils, Greek frets or swastika motives, cartouches richly ornamented, and bands and fillets of delicate proportions. In Connecticut and New York much old iron detail is like English work of the same or slightly earlier date.



A Group of Colonial Hardware, made by The Russell and Erwin Mfg. Co., New Britain, Conn.



From 1558 to 1603 England produced a school of design based upon Flemish and classic art, which we call Elizabethan, marked by strong and virile characteristics. Strapwork and curling cartouches with drapery festoons, the Tudor flat pointed arch, the guilloche and the frequent interlace most emphatically mark this style.

There are three periods of English Gothic, the perpendicular being the highest plane to which it rose. The name was applied because of the perpendicular lines which persist through both the lower plain part of the old traceried windows and the upper decorated portion.

Gothic architecture reached its greatest development in France, however, and the characteristics of French Gothic in decoration are the use of foliage, beast, bird and human forms, often in grotesque.

The German Gothic was largely inspired by the French. Some of the earlier, simpler forms are most impressive, and the work of the early German metal workers is full of true Gothic vigor and inspiration.

The Greek school is known by its swastika, fret or meander patterns, its pure treatment of the acanthus, honeysuckle or palm in the floral patterns, its egg and dart, laurel and ivy.

In the Italian Renaissance school are found all the classic forms of Roman and many of Greek art. The distinctive features are the wreath, garland, cupids, floral arabesques, egg and dart, frets, pearls, and the wreathed ox skull.

In the Louis XIV school we find singularly refined patterns in which latticed backgrounds, shells, graceful cartouches, reeds bound together by leaves or ribbons and interrupted by well-placed ornament in the paneling or flat spaces, are among the most easily recognized decorative forms.

It is difficult to distinguish properly the work of the latter part of this period from the free designs of the Louis XV school.

Intense reaction from the excesses of the Court of Louis XV is evident in French art from 1774 to 1792, when it reverted to a strong classic vein which makes it most beautiful and interesting. Rich without being overdone, designers turn to it with evident pleasure. It is distinguished by flutings and buds, the guilloche, the foliated arabesque, cherubs, palms, pearls, etc.

The Mission school has been much in evidence in the United States for the past few years, and is an off-shoot of the Spanish Renaissance, as illustrated in the Mission buildings of California. Its chief characteristic is simplicity of form in the use of flat surfaces, and a reliance upon shape rather than upon ornament. Our simplest Colonial forms show something in common with this style, but in general whatever ornament is found in the old Mission churches and cloisters is properly made use of.

The front entrance of the house should always receive particular attention in regard to its hardware trimmings, for it is the door which makes the first impression upon the guest, after the general survey of the architectural lines of the house, as he advances. A handsome as well as a convenient front door is really a necessity. The customary method is to trim it with a knob and escutcheon of suitable size, accompanied by a push button for the electric bell. For the house built in the Colonial style, the large handle with or without the thumb latch is perhaps more appropriate than the knob, accompanied by a knocker, although the knob on Colonial doors is also much in evidence. The Mission style also requires a handle; and some of the other schools permit of the use of the stationary handle or lever—the handle with a half turn.

Some of the patterns shown of Colonial hardware are copies of real antiques; the others are carefully designed on lines harmonious with the Colonial period. The old-fashioned thumb latch, which used to be a noisy and insecure method of latching a door, is now made in combination with safe modern locks which afford



A Gothic Group

Sargent Hardware—Made by Sargent & Co., New York

a maximum of security while retaining all the beauty of old-fashioned, quaint contour. Sometimes the thumb latch is used on both sides of the front door; at other times, a knob or knob and escutcheon are placed on the inside, to match the hardware on nearby doors.

Among recent developments in locks are those made with the working parts, knobs and escutcheons all assembled complete in a single structure. One type of these locks is so constructed that the artisan may attach it to the door by simply boring four holes in the door with an auger bit and making a few cuts with a chisel. Another type is attached by a simple process which provides for the removal of a rectangular piece of wood from the edge of the door. This is securely attached to the door, and is said never to be affected by shrinkage of wood. This method for some uses is claimed to be a great improvement over the old lock set, composed of several pieces which may "come loose."

Hardware should be of bronze, brass, or any non-corrosive metal.

Hardware—The Home Mechanism



ARDWARE forms the mechanism of the home, and the question of its efficiency is of equal importance with that of its appearance. The hardware comes into use every time a door or drawer is moved or window or transom opened or closed, a garment hung in its place or a cup suspended in the china closet. Its importance in the comfort of the home is seldom realized but in reality it plays a very prominent part therein, and since it generally lasts as long as the house to which it is applied, too great care cannot be exercised to have each piece possess the proper functions for the place and be of good quality.

One of the first steps toward securing good hardware is to have the architect incorporate in the specifications the name of a standard line. Such sentences as "all finishing hardware to be of ——— manufacture," or "——— builders' hardware to be used throughout" will achieve the desired result. If it is desired to provide for competition, two alternative lines may be named. There are at least five manufacturers whose goods embrace everything required to finish a home and whose product will give satisfaction and any good architect is sufficiently familiar with them all to make an intelligent designation when writing the specifications. Every properly equipped hardware dealer carries one of these lines as a leader and can provide a better selection and a more uniform quality and finish than one who handles a mixed assortment. The practice of the manufacturers of giving special aid and recognition to the dealers who favor their goods is another reason—and an important one—for giving standard brands the preference.

Among the important things to be considered, the following may be mentioned:

Locks for exterior doors. The prime requisite here is security, and it is as important that the rear and basement doors should be well guarded as the front entrance. All the locks should be of the same type with moving parts of brass or bronze, impervious to the weather. Locks of the pin tumbler type afford the greatest degree of security, and the ordinary burglar will not attempt to enter a door secured by a lock of this type. The small flat key is an additional advantage, as it takes but little space in a lady's purse or a man's pocket. There are, however, many excellent locks of the lever tumbler type and a choice can be made therein to satisfy all ordinary requirements.

Some attention should be paid to the key changes here. It is possible, at a very slight additional cost, to have the key to the front door open all the other exterior doors, while the key to the rear or side entrance will only pass the lock with which it is furnished. This makes it possible for the master or mistress to enter at any door, while the servant's key unlocks the rear or side door only.

In many instances the outside basement door is fitted with a night latch only or is secured by an ordinary latch and a bolt. In such cases it is advisable to place a dead lock on the door at the head of the basement stairs, with keyhole on the inside only. This absolutely prevents entrance from below when the inner door is locked, the servants entering by the rear or side door only.

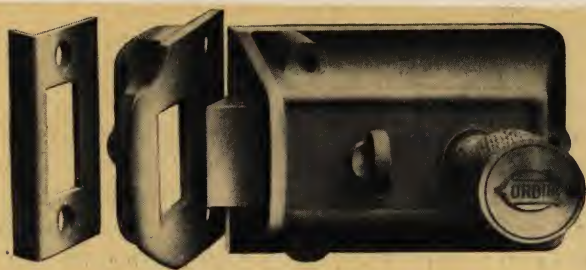
Locks to inside doors. Generally, these locks are used to obtain privacy only and there is not the same necessity for security as on outside doors. It is

usually an advantage to have the keys all alike, so that if one key is lost—as often occurs—the key to any other inside door may be used.

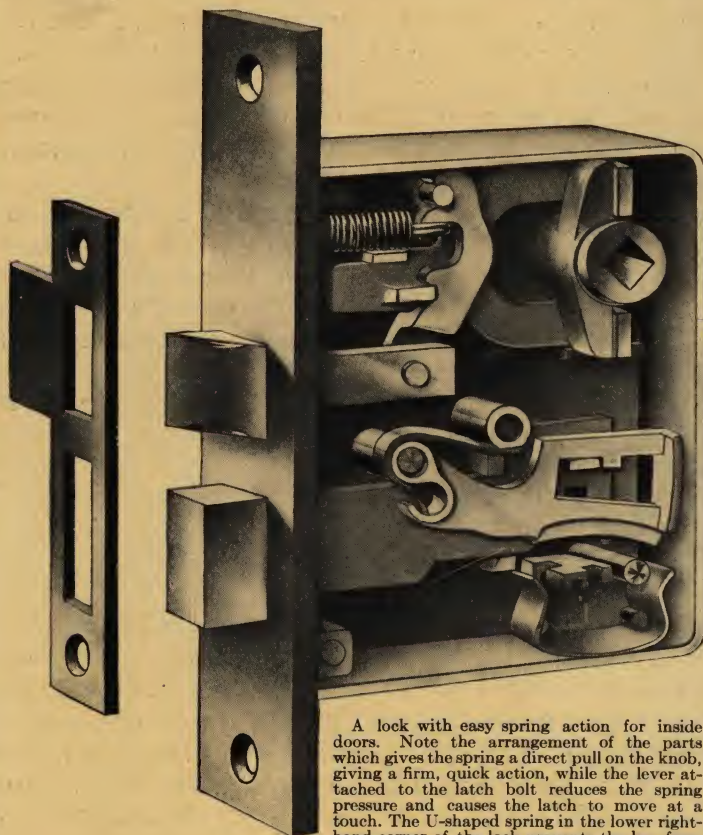
For bath-room doors, where the lock is in constant use, a type with a thumb piece on the inside is very generally used. The door can be unlocked from the outside by a key, which is hung on a nail or hook conveniently placed, for use in an emergency. When a key is used on the inside it is usually necessary to burst the door in if the occupant be stricken with sudden illness.

A lock of this same type is sometimes used on all bedroom doors, with the same key to pass all. There is then no trouble caused by loss of keys to the individual rooms, while the thumb piece is turned easier and with less noise than the usual key.

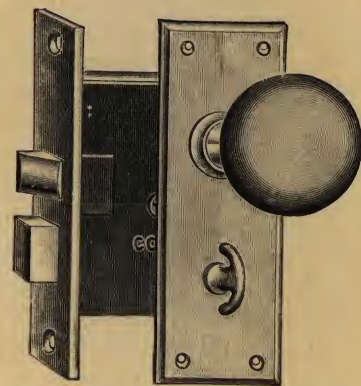
On the bath-room door, the lock should have working parts of brass or bronze not affected by steam or moisture.



A night latch with the functions of a dead lock. This type of lock is especially valuable for storeroom and basement doors, or any place where security is desired at low cost.



A lock with easy spring action for inside doors. Note the arrangement of the parts which gives the spring a direct pull on the knob, giving a firm, quick action, while the lever attached to the latch bolt reduces the spring pressure and causes the latch to move at a touch. The U-shaped spring in the lower right-hand corner of the lock prevents the key from falling out.



A lock set for inside doors, with thumb piece on the inside and key on the outside of the door.

PRACTICAL HARDWARE MADE BY P. & F. CORBIN, NEW BRITAIN, CONN.

Locks for storerooms, fruit cupboards, etc. A night latch is employed here to advantage. This locks the door from the outside each time it is closed and effectually prevents petty pilfering. It is often desirable to attach an ordinary knob latch as well, to be used when it is not desired to lock the door.

Knobs and their spindles. One of the most frequent causes of irritation is shakiness or looseness of door knobs. There are a number of 'screwless spindles sold—each of the principal lines includes them—which ensure a close-fitting and easy-acting fit, and which do not work loose or get out of order. It is well to see that these are used.

Butts and hinges. On exterior doors, brass or bronze should be used, as steel and iron butts rust and squeak. On heavy doors care should be taken to have the butts strong enough to prevent sagging. The best butts for such use have ball bearings, or indurated fibre washers applied between the knuckles, reducing the wear and noise. In some types, retainers prevent the pins from working upward.

On doors which swing outward, fast-joint butts should be employed. If loose-pin butts are used, it is easy for an enterprising burglar to remove the pins and lift the door from the hinges.

On the bath-room door brass or bronze butts not affected by moisture should be used. On other inside doors steel or iron butts may be employed. In a majority of cases, wrought-steel butts are used, plated to match the rest of the hardware. Cast-iron butts are sometimes used, but it is claimed that those of wrought steel have an advantage in that they will not break and the gauge never varies.

Cabinet and cupboard doors are too frequently hung on butts which are so light that the door soon sags, so that it scrapes at the bottom and the catch refuses to work properly. It is poor economy to slight this important feature, for the cupboard and pantry doors are constantly swinging and any fault here is an annoyance. Butts for these locations should have loose pins, making it easy to remove the doors when repainting or refinishing the interior. If it is desired to lock the doors, however, fast-joint butts should be employed to make it impossible to remove the doors by withdrawing the pins.

Door checks. These have been used for years in business buildings and recently in homes of the better class. Their superiority to spring hinges consists in the fact that they eliminate banging and on double-acting doors, such as that between pantry and dining room, the door does not pass the center. The flip-flap of doors hung on spring hinges without a check is at times a source of danger of injury, particularly to children.

There are a number of places in the ordinary home where a door check is an advantage. They are:

The screen door, to avoid banging.

The front and rear doors, to eliminate draughts.

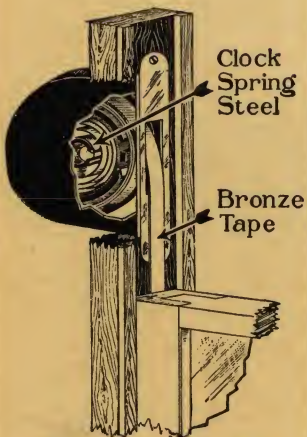
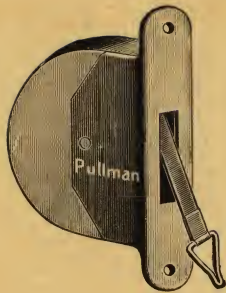
The butler's pantry door, to aid in securing noiseless service.

The door from the kitchen to the back stairs, to prevent the odors of the kitchen from reaching the rooms above.

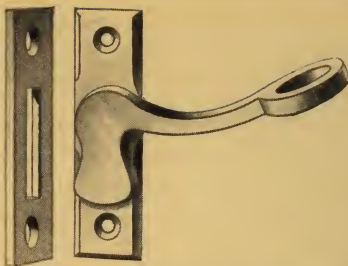
Mirror doors to closets, to prevent slamming and danger of breakage.

There are two types—one the familiar kind attached to the top of the door and the other the floor check, which is sunk in the floor and is not visible. The latter may be preferred for the sake of appearance. In both types checks can be bought with the "hold-back" feature, i.e., they can be adjusted so that when the door is opened at a predetermined angle, it is held open until released by pressure of the hand. Where this "hold-back" feature is not present it is desirable to attach a door holder to the door, which is operated by the foot and holds the door at any point desired.

Cupboard turns. See that these have latch bolts of ample length so that they



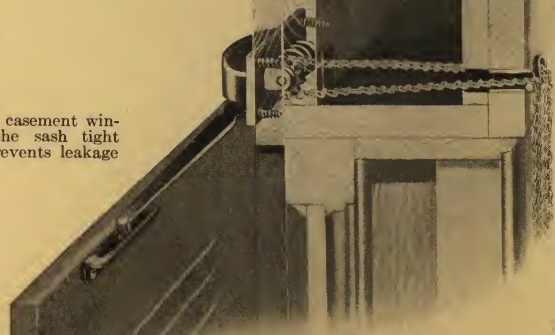
Sash Balance, made by the Pullman Mfg. Co., Rochester, N. Y.



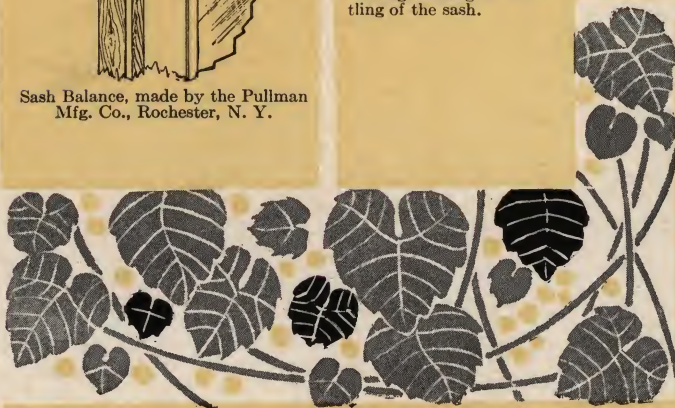
A Corbin fastener for casement windows, which draws the sash tight against the stop and prevents leakage and draughts.



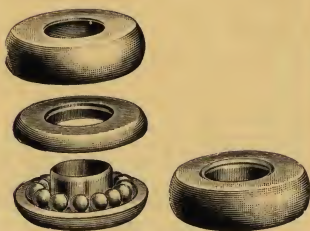
A Corbin adjustable window stop fastener. Loosening the screw permits the stop to be moved in or out, preventing sticking or rattling of the sash.



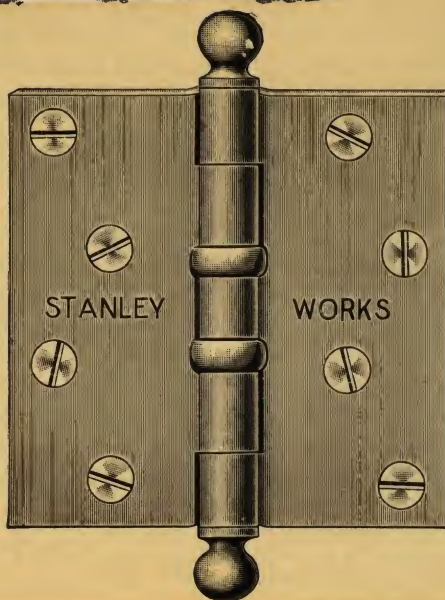
Blind Adjusters, made by the Boston Pressed Metal Co., Worcester, Mass.

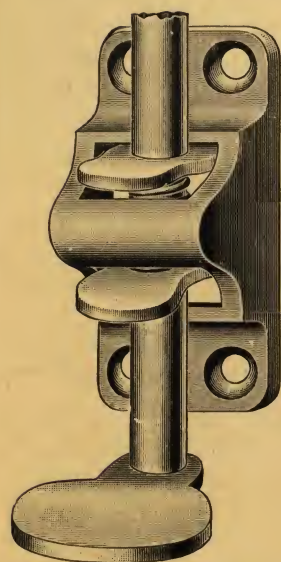
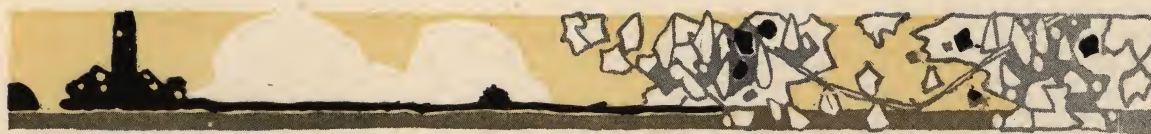


Ball-bearing Butt, made by the Stover Mfg. Co., Freeport, Ill.

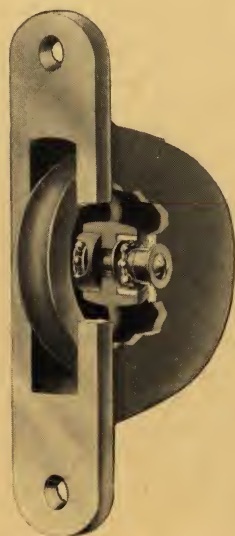


Washers and hinges, made by the Stanley Works, New Britain, Conn.

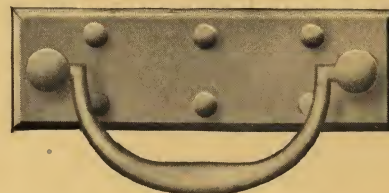




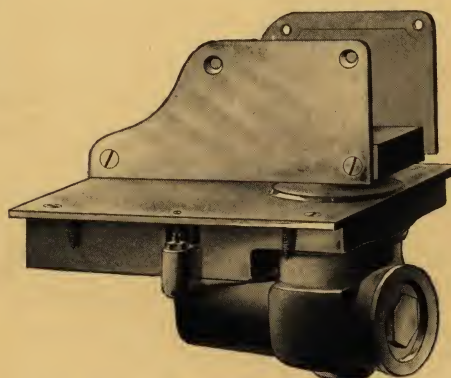
The grip or catch of a transom rod that engages the rod firmly at any point.



A Ball-bearing sash pulley with heavy cast frame and front.



A drop handle for Drawers.



A door check. Check to be set in the floor. Combines the functions of a pair of spring hinges and a door check of the ordinary type. Will hold the door open when desired.

DESIGNED AND MADE BY P. & F. CORBIN, NEW BRITAIN, CONN.

will be sure to engage the strikes if the doors shrink. It will add to the convenience if the knob or thumb piece is of a good size, easily grasped and turned with little effort.

For the finer cabinets there can be obtained what is termed half-mortise locks. These can be attached to thin doors and trimmed with cabinet knobs and escutcheons giving superior service and an effect of elegance. For narrow stiles, where the knob would be placed close to the edge, it is advisable to use a lever handle instead of a knob.

Drawer trimmings. A little care in selection of hardware for drawers is well worth while. If pulls are used they should afford ample space for the hand, especially if the drawers are large and are liable to be heavy when filled. For pantry drawers or linen closet and storeroom drawers, plain bronze pulls fastened with wood screws give satisfaction. For built-in sideboards and cabinets, drop handles to match the other hardware will naturally be selected, and care should be taken to have the nuts on the posts screwed as tight as possible. Handles which have two such posts (one at each end of the bail) should be selected, as the ring or loop which is suspended from one ring will almost invariably work loose unless the post be set in a square socket to prevent the ring from being turned. The key plates should be fastened by screws when possible, for escutcheon pins often work loose or permit the plate to be torn off if the bit of the key strikes it when being removed.

Transoms. If the sash is hung upon centers instead of being hinged at top or bottom it will be easier to move. A transom lifter with a grip which will engage

the rod at any point is to be preferred to a type which will only hold at fixed intervals. Butts should have fast joints, as the pins are liable to work out when placed horizontally.

Double-hung windows. Manifestly the fastenings to the windows should be as secure as those to exterior doors, yet the ordinary householder will expend much thought upon the security of his door locks and but little upon the security of his windows. There are many styles of such fasteners and a large portion of them are of little value as a protection against burglarious assault. It is well to see that the sash lock chosen has a tongue or hook which when thrown or locked cannot be pressed back by pressure upon it but can be actuated by the handle alone; further, that it exerts a drawing action which brings the two sash in close contact, preventing the insertion of tools from the outside and preventing rattle. The handle should lock or catch when thrown, both as an indication that the catch is fully thrown and to prevent tampering from the outside; and finally, the screws that fasten the sash lock to the window should be of ample size and driven firmly home.

Sash pulleys should be carefully selected and a kind chosen that are strong, have wheels that revolve freely and without undue wear to the bearings. Much of the annoyance caused by windows sticking, cords breaking and sash refusing to stay fully closed is caused by poor pulleys. Inferior wrought pulleys on which the axle is thrust through a hole in a thin steel case will sooner or later wear so that the wheel revolves unevenly, if at all, and should be avoided. If the purchaser cannot afford pulleys with roller or ball bearing and bronze or brass wheels he should at least insist upon having those with axles of good size running in generously proportioned bushings.

Adjustable window stops should be deemed a necessity, for they prevent rattle and draughts and make weather strips unnecessary. Any good hardware store carries adjustable window stop washers which permit the stop bead to be moved in or out when the screws which hold it are loosened, and ensure a smooth, even movement of the sash. In selecting, care should be taken to see that the cups or washers are not so light that the pressure of the screw heads bends them out of shape or breaks through the metal.

Casement and French windows. These are deservedly popular, both for the decorative effect and their convenience. The greatest objection to their use is that they are often not weather tight, do not fit properly and rattle, all of which faults are easily remedied by suitable construction and proper attachments of which there are many styles. Either through ignorance or desire to cut the cost, ordinary cupboard fasteners are often used here, but such appliances are not designed for this use and do not give proper service.

The fastener should have a drawing action which binds the sash firmly to the stop, shutting out draughts and preventing the rain from being driven in. Such fasteners can be obtained in shapes and kinds to fit any sash. For large casements and French windows styles are provided which fasten the sash at both top and bottom with a cam action, and in types for double sash there is a catch which draws the sash together at the center as well. Before purchasing it is well to investigate the merits of what are known in trade parlance as casement fasteners, French window bolts, Cremorne bolts and Espagniolette bars in order to make a proper selection. A good hardware dealer can furnish any of them.

Casement adjusters, which hold the sash open at any point desired should also be provided.

Finally. Once a year inspect your hardware. An hour or two with oil, screw driver and a clean cloth will save many a repair bill.



The Development of the Door

By J. EARL MORGAN

Some Artistic Examples of Wood and Steel Construction

Illustrated by Leading Manufacturers



STUDY classic architecture and you will find this:

That the art of the masters has found fullest expression not so much in the general details of building and construction as in the design and ornamentation of the doors and doorways.

With the awakening of man's architectural sense, we find him providing a distinct shape and design for the entrance to his dwelling.

The cave man entered his dugout through a crude hole in the side, the ancient Egyptian provided his simple and substantial dwelling with a door and entrance of beautiful and simple design—it marked the beginning of architectural ornamentation.

The entrances and doors of the Greek temples were marvels of beauty but were ponderous and unwieldy for ordinary use, as were also the entrances to the mediæval castles and palaces.

The modern entrance has become a thing of great importance architecturally. Its lines have been studied with great care and the door itself has reached its fullest development from the standpoint of beauty, serviceability, and strength in the designs and construction of modern door builders.

Doors must fit the house: they must be of such form, size, color, and material as will harmonize most closely with the façades of which they are a part and of the interiors to which they give access.

The good doorway is a part of the architectural motif and it should exhibit the chief characteristic of that motif.

The good door is a part of the doorway and of the house and it cannot harmonize with both unless it is correctly designed and correctly made. It should combine strength with beauty—good design with serviceability.

There is no truer saying than "Doors make the House." When the doors are substantially made and show evidence of high grade cabinet work, when they are of artistic and correct design and are adapted to the general style of architecture, they will give character to the building and create an ensemble which reflects harmony and good taste. This applies not only to the exterior but to the interior effect. The proper doors belong to the house. They become a part of it. The door hangs true, so that the opening and shutting of it become a real pleasure. The door shows no sign of wear or weather. It is honestly made. In fact, it does



Morgan Craftsman E.



Morgan Craftsman H.

Two beautiful examples of doors made by the Morgan Company, Oshkosh, Wis. From their catalog "The Door Beautiful."
Hardware suggestions by Sargent & Co., New York.

credit to its surroundings and draws attention to itself by its rich finish and refined workmanship.

Perfect wooden doors are made with a light weight core upon which is laid the veneer. These veneers are rotary cut and sawed and are of the very highest quality, showing the most beautiful pattern in the grain.

For years white pine was the principal wood used in the manufacture of doors and interior finish. To-day white pine has been supplanted by the hardwoods, and we find birch, ash and oak





Morgan M. 54.



Morgan M. 59.

Morgan doors showing two designs made by the Morgan Company, Oshkosh, Wis. From their catalog "The Door Beautiful."
Hardware suggestions by Sargent & Co., New York.



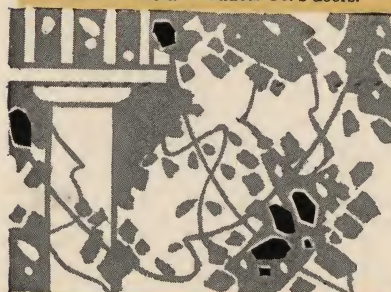
with their different varieties mostly used.

Of all the hardwoods used, birch is the most versatile. The density of birch is greater than any other wood and, not being porous, will not absorb moisture to affect its life.

Ash and oak have their places in the manufacture of hardwood doors and interior finish, and for beautiful grain Wisconsin ash has no superior. Doors built of hardwoods carefully selected can be made the most attractive part of the interior.



Brokaw residence, 5th Ave., N.Y., equipped with U. S. Metal Products Co.'s doors.



The increasing use of steel in all forms of building construction where fireproof qualities are essential is one of the noteworthy developments of the times. In a recent magazine interview Mr. Edison predicted that in the future all furniture would be made of steel, stained and grained to represent the costly woods, and that books would be printed on sheets of nickel, drawn out to such thinness that they would occupy much less space than paper.

In the construction of steel doors, it is well to remember that no rivets are used in the construction, the joints being process-welded, thus making the completed door practically one piece.

The steel is specially treated, being reannealed and pickled and then patent-leveled to secure absolutely flat surfaces. Such doors combine strength with light weight; they are not affected by weather conditions and the panels do not warp or shrink.

Another important feature is the finish, which is not only beautiful but lasting. The beautiful grains of the finest woods are reproduced perfectly. All painting is done by the enamel process, each coat being thoroughly baked when applied, insuring durability. This finish will not crack, peel or check; it is virtually ever lasting.



Bronze Covered Door with Cast Bronze Ornaments, finished to resemble natural grain of wood. Made by the U. S. Metal Products Co., New York.



Hardware for use on steel doors, Russell & Erwin Mfg. Co., New Britain, Conn.



Interior Hollow Steel Fireproof Door, with artistic finish, reproducing beautiful grain of Mahogany. Made by the U. S. Metal Products Co., New York.



Roofing

Illustrated by Leading Manufacturers



It is our intention in this article, to set before the home builder the claims of the manufacturers of the best materials for all kinds of roofing. Such knowledge we feel sure will be of service, as the selection of roofing is a more interesting problem now than it has ever been before. The increased number of roofings to choose from has made a choice somewhat difficult. Many of the poorer makes have every surface indication of genuine service, so making it hard for the average buyer, who has a limited knowledge of the subject, to choose wisely.

First of all, a roof must fulfill its function of protecting the interior of the house from the elements, and its construction should be simple and practical. The roof should bear some relation to the surrounding landscape, and also repeat lines that harmonize with the architecture of the house. There are many roof styles in architecture and ways of adapting them to existing conditions. It is no small part of the architect's work to design a proper roof, for more depends upon this part of the house than on any other single part of the exterior design.

The roof may be made to give the house a low, rambling, comfortable look, or it may be a very pretentious affair; it may be tall and towering, or it may have sharp gables. It is undoubtedly an easier piece of work to design houses of the low rambling kind than any other type; usually the owner's preliminary sketch is a fair example of how a house can ramble. But in the delightful planning of a rambling house one loses sight of the fact that it may be found necessary to install many more heaters to take care of the isolated portions, and to prevent the plumbing pipes, which are spread to the four winds, from freezing during the winter. The cost of stringing out these pipes and making the various turns, corners and gables that become necessary on this sort of a house, adds a large item to the expense.

The roof having been constructed to the satisfaction of the owner, a choice of material must be made for its finished covering. In some sections of the country the roof is boarded in solid and perhaps covered with tarred paper, over which shingles ("everyman's roof") are laid. This is not recommended by those who understand roofing, as the condensation of moisture which forms during a rainstorm or from snow resting on the roof, soon causes the shingles to rot; and as the heat of the house rises to the roof there is no advantage in making this part tighter with the tar paper, for the sake of warmth. Such a roof is boarded in, and shingled very quickly, probably in two or three days; therefore the labor involved is not large. A good cedar or cypress shingle roof, well-laid, should last fifteen years, with careful repairs.

The growing popularity of comparatively flat roofs on residential buildings is

very noticeable. Roofs of this type can be surrounded with ornamental parapets and by the aid of awnings made into delightful breezy summer gardens. The elevation frequently gives views and air which can not be obtained from lower porches.

For flat roofs where the slope is less than three inches to the foot, the manufacturers direct our attention to the one built according to the "Barrett Specifications," of alternate layers of coal tar pitch and tarred felt with a top covering of slag, gravel or paving tile.

The tin roof needs no introduction; only a word of warning. A poor tin roof is almost worse than no roof at all. It is therefore suggested that in purchasing tin plate, great care be exercised to select that quality and manufacture which will bear rigid investigation as to the component material.

The thing that most concerns the owner and the roofer is the durability of the material after it is laid on the roof. The tin plate should carry sufficient coating to properly protect the base. It is much better to pay a price which will



This residence at Englewood, N. J., shows the neat appearance of tin roofing laid with standing seams. It is roofed with tin, made by the N. & G. Taylor Co., Philadelphia, Pa.



A Brooklyn residence roofed "according to the Barrett Specifications," twenty-six years ago.

insure a thoroughly coated plate and a first class piece of work than to try to economize too much. Poor workmanship will not build a roof that will last.

Good roofing tin—the old-time durable quality—is considered one of the standard roofing materials for high class buildings. It has qualities which peculiarly fit it for roofing purposes. It is subject to little contraction and expansion; it is adapted to many variations of climate; only some local conditions peculiar to the building itself render its use impracticable. Its pliability, lightness, durability, cheapness, and the various climatic and other changes to which it is adapted, render its use a most natural one.

A good tin roof is light in weight, requires only a very light roof construction, and is neat in appearance. Where laid with standing seams the effect is attractive, particularly where the crest of the roof is finished off with some simple design. Tin is easily put on and is adaptable to any surface from a flat deck to a vertical wall. If a tin roof is damaged it can be repaired quickly and cheaply, a leak being permanently fixed in a few minutes. The manufacturers claim that wind and snow cannot sift through a tin roof. Nor can heavy rain and moisture get through it, as it covers the upper



Old Independence Hall, Philadelphia, roofed with N. & G. Taylor Co.'s hand-made tin which was laid twenty-four years ago



Masonic Temple, Washington, D. C., roofed with tin made by N. & G. Taylor Co., Philadelphia

surface of the roof with an unbroken, continuous sheet of metal. In case of a fire from within a house, the tin roof acts as a blanket for the flames, and will often hold together intact when the roof supports burn through and collapse, smothering the flames and preventing the disastrous upward draught which often carries sparks and embers to a distance. This well-known feature of tin roofs is claimed to be a great aid to firemen in fighting the flames.

The assertion from some quarters that "we don't get good roofing tin any more" is not a fact. The same good quality

plates are still made; but the prevailing tendency to lessen cost by using cheaper grades and labor, thereby sacrificing the old time quality, has been responsible for unsatisfactory results, and many erroneous statements. Give the tin roof a fair chance with good tin and good workmanship at the start, and the result will be eminently satisfactory.

Before laying, a tin roof should be painted with one coat on the under side. The upper surface of the roof should be carefully cleaned of all rosin and dirt, and immediately painted, all coats of paint to be applied with a hand-brush and well rubbed on.

Since gutters are the natural receptacle for dirt, leaves, etc., they should be swept and painted every two or three years. The roof itself will not need painting more often than at five or six-year intervals to repair the natural wear and tear of the weather. With each painting a roof of good tin is fully restored to its original condition.

A poor roof is an endless chain of expense, annoyance, discomfort and danger. It is claimed that a slate roof, slate being the only workable non-absorbent stone, can neither rust nor decay.

Slate is a roofing made by nature—it comes direct from the quarry in large blocks, and is split to proper thickness and trimmed to required size. The substance of rock does not change no matter what the climate. Slate will not wear away, rust, decay, tear, chip, crack, warp, disintegrate, melt, burn, lose its color absorb moisture, nor contract or expand. Slate is a non-conductor of electricity.



TWO EXCELLENT EXAMPLES OF THE SLATE ROOFING MANUFACTURED BY THE GENUINE BANGOR SLATE CO., EASTON, PA.

As early as the sixteenth century slate was used as a roof covering in Europe. And the same slates are said to be in use on these buildings to-day.

One great advantage claimed for slate is that while heavy enough to keep from blowing off in high winds, it is not too heavy for good protection, nor will it become water-sogged and rot the roof timbers; on the contrary, it easily sheds the water if desired, clean and pure, into the cistern. Slate is usable principally on a roof which has a slant, and therefore is in demand for residential purposes. It is also an insurance against fire, and one's house nowadays must needs be fire-resisting rather than fire-feeding, as were many buildings of the past.

The tile roof has many advantages and several styles of houses are so specially designed as to need the finish of tiling to secure the desired effect. Spanish, Italian and Mission styles of architecture most often demand tiles. The standard color of roofing tiles is red, and on many roofs this color is necessary to harmonize with the architectural lines as well as with the landscape. Tiles are, however, made in a large variety of colors and shadings as well as shapes.

There are also metal tiles, one advantage of which their manufacturers claim is that they do not require so heavy a roof construction as do the clay tiles. These metal tiles are made and designed after the old Spanish clay tile giving the same light and shadow effects and are equipped with a perfect side lock so that no leak is possible even at the lowest pitch. It is said that they can be laid on roofs where the pitch is one-half or one-eighth.

They can be made of any sheet metal desired. There are also metal shingles which make very attractive roofing, and a great advantage of both the metal tiles and shingles is the safety in case of fire.



Stable roofed with Metal Mission Tiles, made by Meurer Bros. Co., Brooklyn, N. Y.



An artistic effect with Metal Mission Tiles, made by Meurer Bros. Co., Brooklyn, N. Y.

Composition roofs are legion nowadays, and it requires a careful study of the catalogues of the various manufacturers, to convince one of the proper selection to be made.

Natural asphalt is a black, viscous substance found in deposits in the earth, formed by nature to give waterproofing service to man, as natural deposits of coal give him the great heating service. It has taken centuries in the depths of the earth to perfect natural asphalt. No wonder that man-made substitutes fall short of their purpose and are soon discarded.

The natural oils keep the asphalt always pliable, and give it power to resist the disintegrating influences of weather changes. This makes it particularly adapted for use in roofing. The waterproofing and preservative value of natural asphalt was known even by the ancient Egyptians.

Asphalt ready-roofings are supplied in different weights and thicknesses; they are easily handled, and while they do not require painting they may be painted to secure different colors. The ready-roofing may be used on flat or steep surfaces with equal facility, and as it is pliable and easily handled, a careful workman should be able easily to make a good job.

A good roof should be uniform in quality, since it cannot be stronger than its weakest point. Asphalt ready-roofing claims to be uniform throughout. Asphalt for road making has proved itself of great wearing quality. If it withstands the wear and tear of travel, in addition to that of the elements, surely the stress of the elements alone would have little effect on an asphalt roof. The asphalt roofing, which comes in rolls ready to be applied, is most convenient.

Asphalt ready-roofing has a mineral or pebble surface, and is also made in smooth surfaces. Crushed quartz is a handsome finish, while the stone finish reminds one of the delightful tar-and-pebble roofs of the days of our grandfathers.

Asphalt roofing is constructed of nature's own waterproofing agent—asphalt applied to felt and burlap, the outside being protected by gravel or crushed quartz which is rolled into the thick coating of asphalt while it is hot. The selvage is without the sand, quartz or pebbles in order to make a tight joint; and the seams are cemented with liquid cement when the roofing is laid. The ready roofing is made with a view to being a non-conductor of both heat and cold—very desirable qualities especially in American climates.

The old warning "Never buy a pig in a poke" is well applied to roofings. If you want an asphalt roof, you can procure an admirable one. If you wish slate, shingles, tin, tile, they are all admirable for the conditions suited to their special merits, and to the style of house planned.

The modern requirements of fire departments make it necessary to consider the subject of safety from sparks, in using a shingle roof. Therefore, if you build in a congested district, it is well to consider the asbestos shingles rather than the old-timers.

In asbestos shingles one has a roof, when properly applied, that the manufacturers claim will outlast the lifetime of the building. The simple exposure to the elements causes the cement, that has been deposited upon the asbestos fibre in the process of manufacture, to crystallize, and it then becomes better and better; in fact more serviceable as time rolls on. Cement has been known to crystallize as long as twenty-eight years from the time it was first mixed. This is only proof of the claims, made for asbestos shingles—that they improve, toughen and harden with exposure to the elements and atmospheric changes. Another good point that is claimed by these shingles, is the fact that they do not need to be painted to preserve them, as the elements take better care of asbestos shingles than the best paint or dressing that has ever been made. These shingles come in a variety of shapes for special roofing.

Asbestos roofing is divided into several classes to meet the requirements of



Residence of Oswald Hessler, Bogota, N. J. Delaney & Ferber, builders. Covered with J-M Transite Asbestos Fire-proof Shingles made by H. W. Johns-Manville Co., New York



Residence of Mr. W. Hilt, Ridgewood, N. J. Ridgewood Development & Construction Co., Builders. Covered with J-M Transite Asbestos Fire-proof Shingles made by H. W. Johns-Manville Co., New York

various forms of construction. That which is perhaps most familiar to the general public is the type known as "ready" roofing, because it is supplied all ready for use, with the necessary nails and cement for fastening the laps packed inside of each roll of roofing. The heavier weights are sometimes packed flat in crates.



J-M Transite Asbestos Fire-proof Shingles made by H. W. Johns-Manville Co., New York

Asbestos ready roofing consists of several different thicknesses of asbestos felt, saturated and cemented together with Trinidad Lake Asphalt. It has no surface coat of paint in the first place, and never requires any.

The asbestos fibres are in themselves radically different from the animal or vegetable fibre, being solid instead of tubular like a hair.

Some asbestos roofing is made with an unsaturated white sheet on the surface, which presents an attractive appearance and has the additional advantage of deflecting the heat of the sun in hot weather. This feature is especially appreciated in warm climates.

Asbestos built-up roofing is used quite extensively in the larger cities. Several sheets of saturated asbestos felt are cemented together with hot asphalt in somewhat the same manner that a tar and gravel or slag roof is constructed.

Another class of asbestos roofing is made in corrugated form, re-enforced with metal, so that it may be applied on an iron or steel frame or on wooden rafters, without the necessity for roof boards or sheathing, similar to corrugated iron, but much more durable.

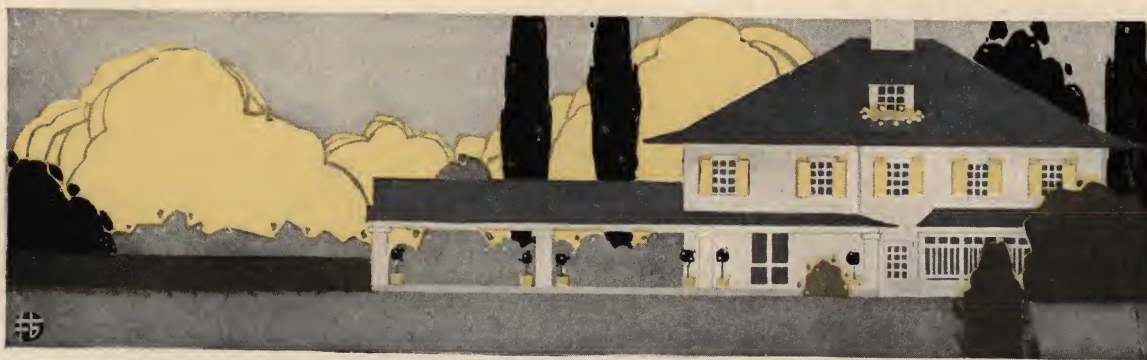
Being fireproof and not affected by continuous moisture or frost, or subject to deterioration by the elements in any way, it is obvious that asbestos shingles and asbestos building lumber may be employed freely and confidently in a vast variety of places where lumber has failed.

Primarily designed to replace the ordinary roof covering only, the merits of asbestos shingles are claimed to be such that their employment by good architects and engineers has extended to all classes of work wherein the many desirable qualities have supplanted other materials heretofore commonly in use.

For guidance in selecting the best paint for a roof, where necessary, our readers are referred to the chapter on that subject in another part of the book.



A Genuine Bangor Slate Roof.



Concrete Construction

Illustrated by Leading Manufacturers



AMONG the best and most economical house-building materials necessary to secure the essentials of permanency, durability and comfort, concrete has probably come nearer to a solution of the problem than any other material previously tried.

Concrete is not new. The Phoenicians were, perhaps, the first to discover and use cement and the results of their labors stand to-day, a monument to their inventive ingenuity and to their foresight.

To those unfamiliar with the terms Portland Cement and Concrete, a word of explanation is necessary. Portland Cement is the name given to a mixture of limestone and cement rock, which has been burned at a very high temperature and ground to a powder finer than flour. Concrete, or artificial stone, is produced by a mixture of Portland Cement, sand, and crushed stone, or gravel, varying in its proportions to meet the requirements.

There are excellent reasons why concrete is to be commended. The most important are its permanency and durability. Concrete, when mixed to the proper consistency by men competent to do the work, will stand for hundreds of years. With each succeeding year, it will form a more perfect bond, which effectively withstands fire, flood, earthquake, and all conditions of weather. Another essential feature is that a concrete building is warmer in winter and cooler in summer than houses of less substantial construction. A concrete house may cost slightly more to build than one of wood, but the cost of maintenance of a frame house is so great that in a short time it becomes more expensive than concrete and, at the same time, not as satisfactory nor as durable. A concrete house requires no paint nor repairs, can not wear out, and nothing save dynamite will destroy it.

The hollow wall construction, which consists of tying together two comparatively thin walls with either concrete piers or steel bars at regular intervals, has been the occasion of lively interest to those studying modern building methods. This style, while slightly more expensive, is considered by most engineers and architects to be the best form of construction for house-building purposes.

Brick and stone have their limitations as to style of architecture and adornment; wood has not as many limitations, while concrete has practically none.

There has of late been considerable interest shown in concrete block and concrete tile with an exterior finish of stucco cement. It is less expensive than the monolithic concrete and scarcely less durable. This method of construction is very much more satisfactory than the plain hollow concrete blocks, which have been favored by many builders in various localities. Stucco applied over concrete blocks or concrete tile gives the building a neat finished appearance, besides rendering it impervious to the weather. For those desiring an inexpensive house,



Examples of Concrete Houses by Atlas Portland Cement Co.



Examples of Cement Houses by Atlas Portland Cement Co.

that will fulfill practically all the requirements of monolithic concrete, this class of construction is recommended.

Stucco work is cement plastering and, in one form or another, has been in use for ages. It is durable, artistic and impervious to weather. For veneering new buildings or protecting old structures, and wherever the cost of solid concrete is prohibitive, Portland cement stucco can not be equalled. Stucco may be used satisfactorily on wire lath, rough stone, brick, concrete blocks or concrete tile.

The inefaceable item of fire insurance is one that also should be taken into consideration when planning the house. In many states, an extremely low rate of insurance is offered for buildings of concrete construction and, when the floor and

walls are of reinforced concrete, insurance has been considered wholly unnecessary, as it is impossible to destroy such a building by fire, storm, earthquake, or flood.

Arguments have been put forth to the effect that concrete houses are damp and, consequently, unhealthy. On the other hand, a model of a sanitary concrete house was awarded the first gold medal at the late Congress on Tuberculosis held in Washington. The house is cast all in one piece, the walls, floors, and fixtures being of reinforced concrete; window frames of cast iron. If concrete houses were damp, they would not have been selected as the most satisfactory for patients suffering with tuberculosis.

To insure the best results, it is necessary to employ the best labor obtainable. The success of concrete construction depends upon this and the quality of the materials and cement used.

We show several illustrations of what has been done and can be done in the way of moderate cost concrete houses, cottages, and bungalows. The first cost is undoubtedly higher but this is to a great extent offset by other advantages.

The use of concrete in building construction is constantly on the increase and the illustrations which we present give a fairly representative view of the range of the architectural possibilities in this material.

Fireproof Houses; How to Build Them

BY CHARLES E. WHITE, JR.



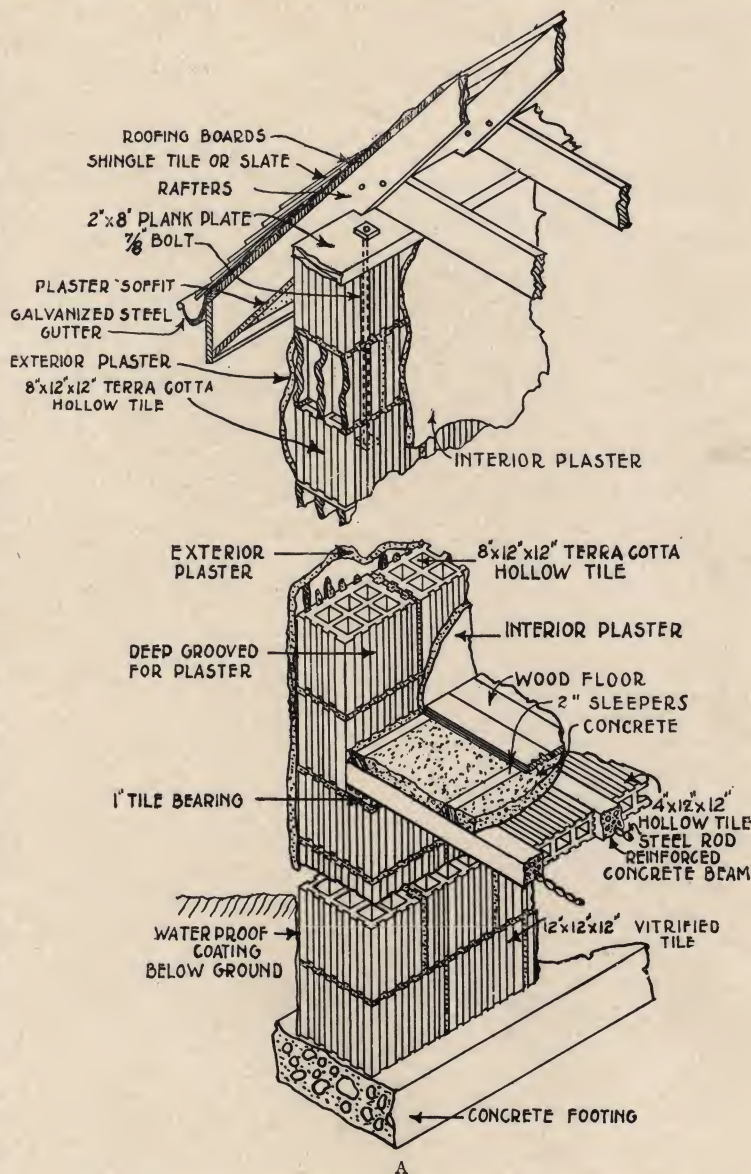
NEW method of building has come into the house-building field. A method where sound sturdy building dominates; enduring, honest, free-from-repairs construction that makes a house fireproof, economical and attractive.

The basic idea of fireproof construction for houses is not new. For years terra-cotta hollow tile has been used for fireproofing office buildings and school houses, and in some instances the older patterns of tile were used for houses, but it has remained for present-day manufacturers of hollow tile to invent and produce a pattern especially

adaptable to house building.

Cement-plastered exteriors, now used so much from one end of the country to the other, have quickened a demand for something more permanent than frame construction, wood or metal lathing. Cement plaster is an excellent material, but it requires a firm base of non-shrinking masonry to give the most efficient results. When a frame building shrinks the plaster cracks, for no matter how well done it is, plaster will not stand any movement of the frame underneath without cracking, and sometimes, when the movement is particularly intense, it disintegrates and drops off in large sheets. It is possible to get a good job of plastering on frame construction, but the best results are assured when hollow tile is the structural material.

To fill this demand for an economical building substance suitable for cement-plastered and brick-veneer houses, the new terra-cotta tile are made with deep grooves on four faces. Into these grooves the plaster flows and grips,



Typical Fireproof Construction as used for Houses with Plaster Exteriors

much as it grips wood or metal lathing, but of course the grip on tile is firmer. Inside the house plaster is also applied directly to the tile, thus doing away with lathing and furring. For this reason it is cheaper to plaster on a tile wall than to plaster on frame or brick, where furring and lathing are required.

Plate A shows a very good method of using hollow tile. 12 x 12 x 12 inches vitrified tile are used in the basement, set on edge. In a wet soil it is customary to waterproof tile on the outside below grade, with tar or other waterproofing. A good thick coat of cement mortar trowelled firmly on the outside answers the same purpose. When the proper height for the fireproof floor is reached flat tile are laid on the floor-supporting shelf. Then a wooden scaffold is built to hold the fireproof floor material temporarily.

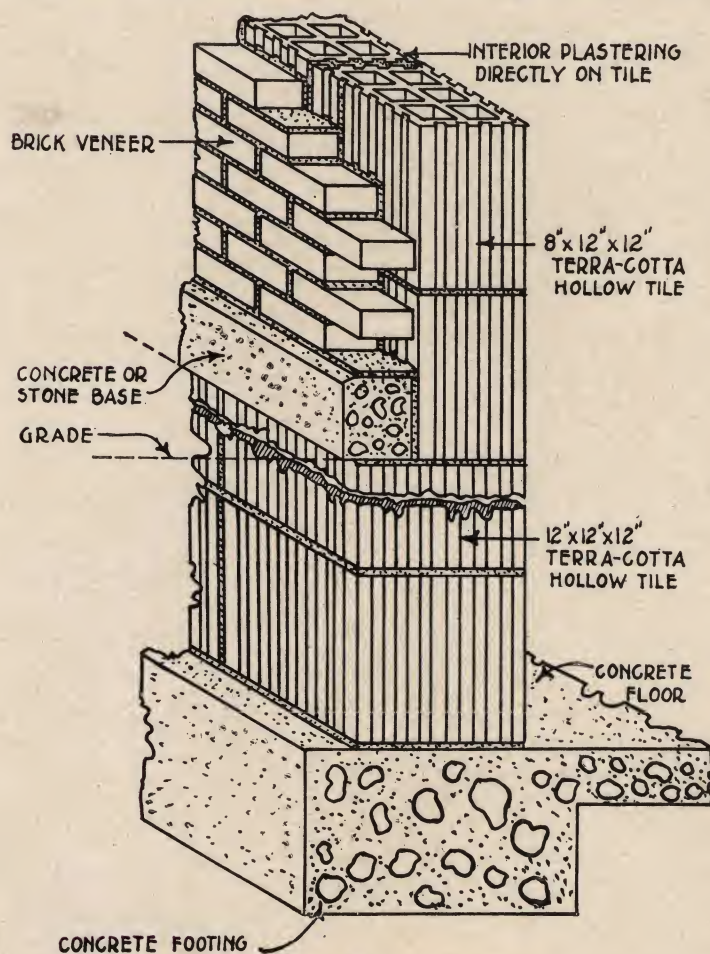
For a practical and economical fireproof floor lay rows of 4 x 12 x 12 inches grooved tile about 4 inches apart, and after placing steel reinforcing rods in the channels between the rows of tile, fill them with cement concrete. (Plate A.) The result is a succession of reinforced concrete beams with hollow tile fillers between, temporarily supported by the wooden scaffolding. No expensive forms to mould the different parts of the floor construction are required; a great saving of expense over most fireproof floors.

The precise thickness of a fireproof floor for houses is easily determined when the span and load are known, by referring to construction tables furnished by all manufacturers of terra-cotta hollow tile. Thickness varies from 4 inches to 6 or 8 inches, 4 inches being ample in most cases. On top of the tile work composing

the fireproof floor, gas and water pipes and electric wires are laid. Then these pipes are covered in by a coating 2 inches thick of concrete, spread over the area of the floor. Imbedded in the concrete are bevelled strips to which the wooden, finished floor boards are nailed. (Plate A.)

The underside of a fireproof floor is plastered directly on the material, no lathing or furring being used. There is no vibration in a fireproof floor of correct thickness. Such a floor is as solid as a wall, as indestructible as the very foundations and equally fireproof. There are no sags to crack the plaster nor spaces for vermin. In addition, hollow-tile floors and partitions are sound proof.

When the first floor is laid you may proceed with the exterior walls up to the level of the second floor, which is laid precisely like the first floor. A scaffold-



Practical Construction for Brick-Veneer on Terra-Cotta Hollow Tile



A Group of Houses (C and D) showing Natco Hollow Tile Construction by the National Fire Proofing Co., Pittsburg, Pa.

ing is built temporarily of 2- and 4-inch uprights with common boards on top, on which the rows of tile are laid out and channels filled with concrete, reinforced by steel rods. Over the tops of windows, lintels are made of reinforced concrete slabs, or a number of hollow tile units can be laid in a row, stuffed with concrete reinforced by steel rods, and lifted up into place over a window. Wide interior doorways are covered the same way, though narrow doorways, where the load above is not too heavy, do not require special lintels.

To get the maximum of efficiency out of terra-cotta hollow tile, they should always be laid on edge. When laid sidewise the strength is so materially reduced it is not considered good practice to use them otherwise than on end. Besides this, vertical cells are useful to run vertical pipes in, from cellar to second floor. For this purpose slots are cut in the wall by breaking out enough places in the tile to provide a vertical slot. Another way to run vertical pipes in a partition is to build a slot for them as in a brick building.

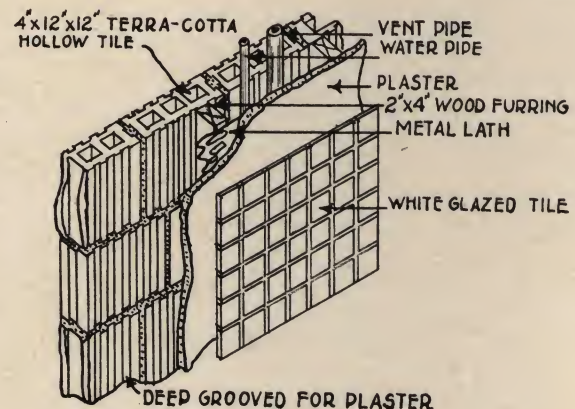
Brick houses are built of terra-cotta hollow tile, veneered with one layer of brick on the outside as shown in Plate B. This makes a better construction than solid brick, for the cellular construction of hollow tile makes excellent insulation, keeping a house warm in winter and cool in summer. Brick houses require furring and lathing on the inside for plastering. When backed up with deep grooved hollow tile as shown in Plate B, no furring or lathing is required. In such cases interior plaster is applied directly to the hollow-tile backing.

How can one apply wood flooring and trim in a hollow-tile house when there is no lumber to nail to? As has already been explained, the wooden finished flooring is nailed to cleats imbedded in concrete and this provides space underneath for horizontal gas, water, and heating pipes. On walls, corrugated-metal wall plugs are driven into the joints of the tile at points where trim is to be afterwards applied. Just before a building is ready for plastering, wooden grounds are nailed to these wall plugs by driving nails through until they are gripped by the corrugations of the metal. Then the building is plastered up to the grounds and the trim is afterwards nailed through to them.

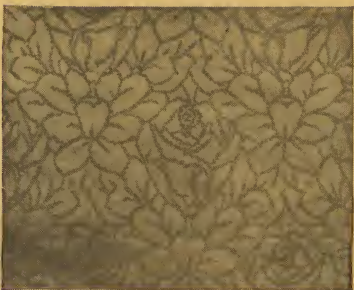
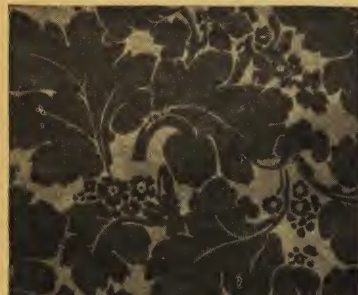
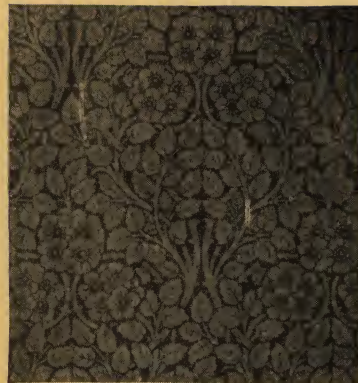
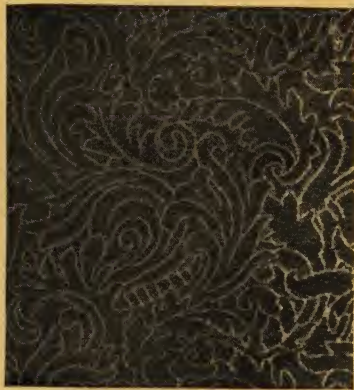
It is no more difficult to construct a fireproof house than a wooden one. Every good modern method of building hollow-tile houses is easy to understand, and any contractor is capable of building such a house as easily as frame, brick, or stone. Houses with plastered exteriors on hollow tile are very attractive. Plates C and D, attractive and practical terra-cotta hollow-tile houses designed by Mann and MacNeille, are particularly interesting, as they represent careful consideration of architectural design as well as economy in construction. Plate D shows a very pretty effect over the first story arched windows, obtained by using colored tile imbedded in the cement plaster.

One of the first questions asked a hollow-tile expert is, "*How do you run bath-room pipes in a hollow tile partition?*" The easiest way is to furr out the wall inside with ordinary 2 x 4-inch studs nailed to the tile partitions (Plate E). In this space you can run all the horizontal and vertical pipes necessary for bath-room fixtures.

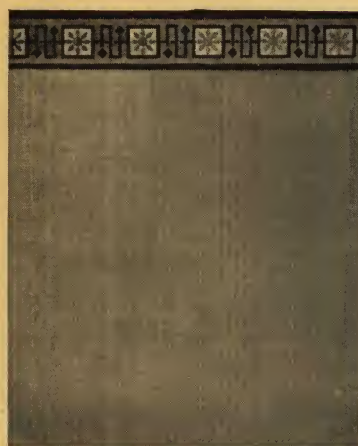
Houses like these last practically forever. *No repairs* and *no fire risks* make this latest type of construction appeal to every house owner, and justly so.



E
Method of Running Pipes in Bath-Rooms in a Fireproof House



"Geometric all-over patterns, or conventionalized flower designs in two or three harmonious tones or colors, are apt to be good."



"Foliage paper, soft in color and indefinite in design."

Plain texture papers with borders.



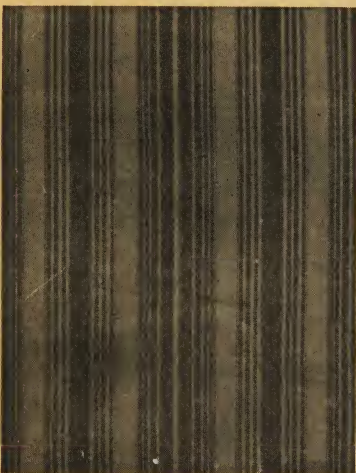
Types of wall papers which are too profuse and realistic to be used as decorations. They become tiresome for daily living.



Medallion spots with "Scrolly" outline represent a common type of distressing pattern.



Types of papers which are aggressive by reason of prominent separate spots.



A few good examples of striped paper.



The Decoration and Furnishing of the Modern Home

Practical Observations by

HELEN BINKERD YOUNG

Department of Household Art, Cornell University



THE problem of home decoration is always with us. Hitherto much material, time and money have been wasted on trial ideas, largely because of a failure to grasp the nature of the problem. So much is now known about the physical and mental effect of home environment that every intelligent person may acquaint himself with a few wise and reasonable principles. The psychology of the nervous system recognizes jarring colors and patterns as well as jarring sounds; hence mistakes in decoration can no longer be excused under the kindly mask of a difference in taste. It is no longer sufficient to say, "I know when I like a thing, but I don't know why I like it." We should now learn why.

The value of a rational view-point on any subject is unquestioned. It furnishes a base of operations from which to work out ideas. External chat about color schemes and materials is of no use until we have an internal view-point. Let us see if we cannot develop a point of view on which all home-loving people may unite.

The term, "Interior Decoration," is in itself misleading. To the average person it conveys a fancy or ornate impression. Hence both home-maker and decorator of the past generation have felt that in decorating a room they must do something which would show up well. This we now know is not what we want. In fact, it is the very thing we do not want; for, in the main, walls are merely backgrounds for pictures, furniture and people and should be covered in such a way as to hold their place. Moreover, a home should be a place to rest. All things in it should encourage peace, harmony, repose and freedom. Mental and moral poise are impossible to persons engulfed in a sea of bright colors and aggressive patterns. Nervousness is the sure price paid for over-decoration.

In most homes, decorating or furnishing in some particular period or style would be inappropriate. This is fortunate, as past forms of art seldom represent modern conditions. Most period styles were developed under kingly patronage and intended for court or princely life. Neither then nor now did they represent the life of real home-loving people. To employ them would thus be an affectation—an admission of poverty of idea and of lack of imagination. Many expensive houses are decorated in period style, but few homes, for homes are neither exhibition rooms nor museums. These styles are valuable only in so far as they represent truths or

ideas which are permanent. Whatever styles show beauty of color, simplicity of outline and dignity of design will always be entitled to respect, and may be used with discretion if people honestly admire them. Not otherwise. It must also be remembered that if the decorations are more interesting than the people, something is wrong either with the one or with the other. Daring and stunning decorations are appropriate in ballrooms, clubs and public buildings, where the flow of travel is rapid and constantly shifting, but are not appropriate in homes; for household art must stand the steady test of livableness for a long period of time. All sane selections must recognize this idea.

Through the following articles on window hangings, draperies, paint, wood-finishes, floor coverings, furniture and kindred subjects, one must remember that behind each subject discussed lies a fundamental idea; and those articles are best in which material, pattern or form serve most simply and appropriately the original purpose of the piece. If any decoration appears it should be related to the structural shape or surface it adorns.

Here is the parting of the ways between good taste and bad in home decoration: Good taste consciously emphasizes the welfare of people. Bad taste unconsciously emphasizes the possession of things. So much for the point of view.

Let us now deal definitely with the subject. Decoration deals with the fixed parts of an interior—walls and ceiling, woodwork and floors. In these we have two materials to treat—wood and plaster. Wood is finished first to preserve it, second to beautify it; plaster is finished chiefly to make it more beautiful. It is the purpose of decoration to unite these materials into an harmonious color scheme, using any medium which shall secure cleanly and durable results.

Modern decoration must be artistic, sanitary and economic. Let us cease to temporize with ineffectual and cheap materials which need constant renewal, and consider an interior as a piece of fixed design.

Success in decoration depends primarily upon an understanding of color. We must know the difference between colors and tones and what is meant by harmony.

For the purposes in hand we will consider that (with the exception of black and white) there are only three colors which cannot be made by combinations of other colors. These are red, yellow and blue. Experiments tried with these primary colors upon sick people and well, show that red is in some measure exciting, blue in some measure depressing and yellow cheering and neutral. Clearly then, wall coverings which are strongly red and blue must be avoided, as they react too strongly on the nervous system. Yellow, on the other hand, may be used in a more or less clear form.

An explanation of this sort made to an audience of women meets with a response of nods all over the room. Each finds some proof of it within her own experience. Sensitive women have been known to pay the price of one headache a week for a red wall paper. We confess to this color influence ourselves in such expressions as "red with anger" and "having the blues"—Compare this to the calm mood of being in a "brown study." Why is brown calm? Because it is a mixture of red, yellow and blue, in which each color subdues the intensity of the others. In other words, brown is a tone, and any other color which contains the three primary colors is a tone, in whatever proportions mixed. Equal intensities of red, yellow and blue make a neutral grey; more yellow or red makes warm grey, tans and browns, more blue makes cold greys, more yellow and blue make green-greys. In common parlance then, tones are softened colors. All colors which can be accurately described by the suffix "ish," as greenish-grey, yellowish-green, bluish-grey, reddish-brown, are tones and safe to use on large surfaces. And those colors or tones harmonize which have an abundance of the same primary color in their make-up. For example, green walls which are to harmonize with golden brown woodwork, must show much yellow, as golden brown is largely yellow;



A LIVING ROOM

Finished in Lowe Brothers Golden Oak Stain & Varnish rubbed, and the walls decorated with Lowe Brothers "Mellotone"—flat oil colors. In addition to its artistic colors, this product is washable and particularly durable.



A LIBRARY

Finished in Lowe Brothers Flemish Oak Stain & Varnish rubbed, and the walls decorated with their "Mellotone"—flat oil colors.



Examples of finished effects obtained on quartered oak and ordinary chestnut by the use of Wheeler's Wood Filler, Stains and other Bridgeport Standard Products.
Made by the Bridgeport Wood Finishing Co., New Milford, Conn.

accurately described, such a color would be a yellowish grey-green, light or dark in shade as the case might require.

Nature furnishes the ultimatum on the subject of color, for it is from this source that the color sense of a nation is largely developed. In our own country Nature moves in great shifting masses of greens and browns according to leaf or leafless seasons. For this reason various tones of greens and browns are pleasing to people in general. "Green as grass" is a frequent term of comparison. Yet observe how green grass is not, when compared to a green wall paper. We are not keen enough observers. Nature's color schemes are never color screams. If we attempt to outwit her by using colors which are too bright, she fades them till they are fit to live with. Greens and blues are especially treacherous, because, broadly speaking, artificial colors tend to fade toward the yellow.

To prevent confusion, all soft colors or tones will be referred to merely as colors throughout the rest of this discussion; and pure or bright colors will be called such.

Color depends upon the nature of light for its interpretation. A given piece of color will appear differently in sunlight and shade, by daylight and by nightlight. This we must remember in decorating. Indoors we have artificial conditions of light, due to the fact that it enters from the side and usually from only one or two directions. Also, because a room is box-shaped, there is reflected light as well as direct light. Because of this reflection a light color will look lighter and a bright color will look brighter than the actual color applied. No interior need appear dark if all the daylight which enters is worked to its fullest capacity. The ceiling especially acts as a reflector of light. Hence it is kept moderately light in value unless the interior is already too bright when it may be made darker to absorb the glare. Dark color schemes are hard to illuminate at night. This makes the evening lights expensive. Strong contrasts between woodwork and wall or wall and ceiling, whether of color or light and shade, tend to break up the color scheme.

The color scheme for any particular room is influenced by the kind and amount of light which enters it. Rooms with northerly exposures (north, northeast and northwest) lack red and yellow, and therefore look their best in cream, yellows, buffs, tans, golden browns, reddish-browns or any other warm colors. Beware of blues and greens with this exposure. Rooms with southerly exposure (south, southeast and southwest) have an abundance of yellow, and therefore look their best in light or dark colors which are strongly greyish, bluish and greenish, cool tans, neutral browns, etc. With this exposure avoid colors which are strongly yellow, unless the room is naturally dark.

A small room looks its largest with plain light-colored walls. Only a large room can stand a large pattern. Horizontal treatments, as dados, wainscoting, deep friezes and "dropped" ceilings, will make a high room appear lower. The walls of a low room should be left unbroken from baseboard to ceiling. Striped paper is excellent here, as it emphasizes the vertical dimension of the room. Thus it is evident that in any case Interior Decoration aims to overcome natural deficiencies in lighting and proportion, where such exist.

The selection of wall covering in any case is greatly influenced by the use of the room. In all living rooms of whatever sort we have many tastes and many moods to satisfy. Only unobtrusive walls are appropriate here. Strong color preferences and a taste for novelty effects should be reserved for one's own bedroom or den, where they cannot offend others. Whatever virtue there may be in figured papers, certain it is that plain walls are most satisfactory for rooms most lived in. They are also the best background for pictures, since patterns compete with pictures in interest. Figured papers of the right kind are frequently used in halls which they help to furnish without getting in anybody's way.

Dining rooms are usually lacking in plain space because of the medley of dishes and small articles used in serving meals. Pictures and plate rails with their attend-

ant burdens of dust and china are in most cases superfluous. Let the decoration of the wall suffice. Wooden wainscoting with plain or patterned wall above or some combination of plain and pattern paper or plain wall covering with texture, will be found satisfactory. Paneling is a beautiful, dignified wall treatment in places where furniture does not hide it too much. It is much advised where the structural spacing of windows and doors permits, but is not to be thought of if they are arranged in a haphazard way. As soon as our houses are more carefully designed inside, paneled decoration will be more used.

Bedrooms are usually lighter and daintier in color scheme than living rooms. The presence of white bedding, towels, underclothing, etc., would suggest this idea if cleanliness did not. The purity of white and other light colors is in itself soothing.

Plain walls may be secured by any means and at any price thought fit: by water or oil paint; by burlap, canvas, muslin or other textile, with or without an oil finish; by ingrain, oatmeal, crepe or other texture wall paper. To any of these may be added a well-designed band, border or frieze, stenciled or otherwise, marking the joint between ceiling color and side wall. This greatly relieves plain walls, and occurs high up in the room, away from the furnishings. The decorator's "upper third" treatment is on this principle. Borders have lately been omitted in decoration, not because they were wrong in principle, but because they were badly designed and added to an already patterned wall. Interior Decoration like all other art depends upon a balanced relation between plain and decorated space.

With oil or water paint (calcimine) any desired color may be mixed; with wall paper and textile we can choose only such colors as there are on the market. Textiles and many wall papers have charming texture; paint has none unless applied over rough plaster. It has, however, other qualities which greatly recommend it.

Paper is a material largely used for walls. The great bulk of wall-paper designs is, however, untrustworthy. Many unhappy selections are made because the average person is, in his own mind, confused as to the qualities which a good wall paper should possess. Flourishing, muscular patterns which look well in a piece a yard square are overpowering when a hundred times repeated. Such a selection is at length torn off the walls to make room for another paper differing only in pattern, not in principle. What we need is simpler and more subtle design.

Descriptions and illustrations of a few types of wall paper which are good in principle will help to clear the air.

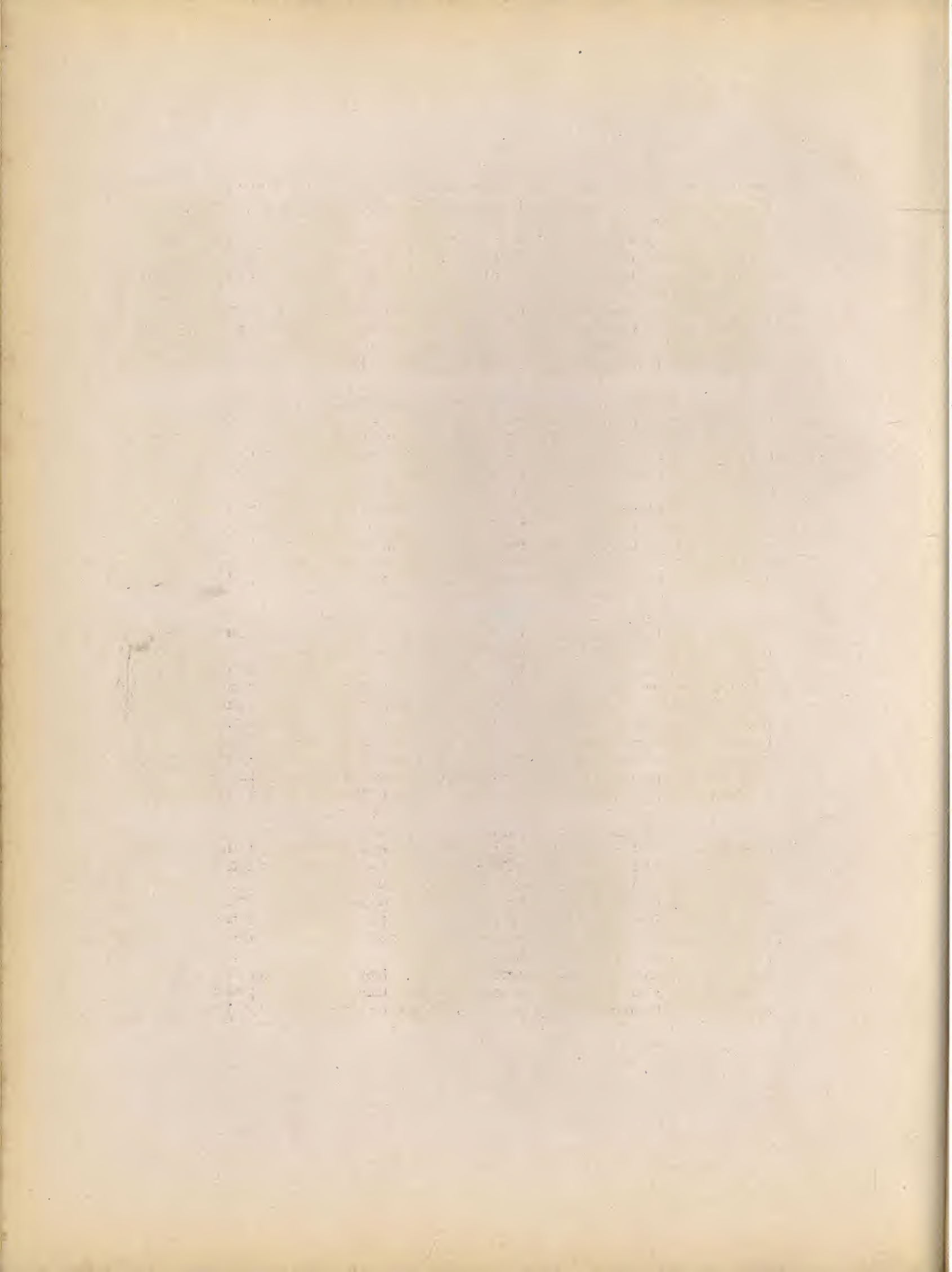
All indications of texture by dots, dashes, lines or hairy flecks of color produce plain papers of nice quality. Of such there are literally scores called by various names. Since a wall is a flat surface, designs should be flatly represented so as to lie tight to the wall. The most logical types show only two dimensions, length and breadth, not thickness. All shaded moldings or life-like imitations of rounded forms, are false in principle. Natural roses dropped over the wall or an actual grape vine crawling through an actual trellis is not good decoration. A floral wall paper should suggest to us the idea of a rose or other flower adapted for use on a flat surface; not a confusion of life-like flowers bulging from the wall. Natural forms should be conventionalized, either in size, form, color or all three, before they are good decoration. Conventionalized means simplified, flattened and applied to some definite orderly arrangement. Scenic borders are often good if not too realistic. About seventy-five per cent of figured wall papers are on the wrong principle. Therefore, when in doubt about a pattern choose a plain one.

All geometric all-over patterns or conventional flower designs in two or three tones of the same color or harmonious colors are apt to be good. An all-over pattern which connects or interlaces is usually more pleasing than one composed of separate spots. Most scroll patterns are frivolous, meaningless and apt to be bad. Large medallion or shield-shaped designs with scrolly outline form a common type of distressing pattern. Figures of a pattern should not be too far apart, else we



Good Tones for Interiors

May be made by blending primary colors with white. Those shown here were made from the standard colors of "Mellotone," a washable flat finish for interiors, manufactured by The Lowe Brothers Company, Dayton, O.



are surprised at each repetition and never get used to the idea. Striped papers are good if the contrast is not too pronounced nor the stripes too wide. There is usually a splendid selection in these. Foliage papers, soft in color and indefinite in design, are excellent used with plain paper, either in panels, or high in the room above the line of the eye.

Unity of the entire effect is essential. To look from a green room into a red room and from there into a yellow one is distressing. It also breaks up the feeling of space for which wide openings were originally devised. Contrasts in color should not be equal in bulk.

Woodwork and floors are usually finished before the walls are decorated. This restricts the choice of color schemes, for contrasts must not be too great between trim and wall. Whenever possible, it is best to consider the color scheme of woodwork and wall together before either is finished. More unusual results are thus possible.

Floors should be continuous in color as far as the eye can see. For practical reasons they should be kept fairly light-colored. A medium oak brown shows dirt least and harmonizes with almost any subdued color scheme which is not darker than itself. The modern tendency is too much toward dark interiors. Most dark wood-finishes need diluting or rubbing off after application to secure luminous results. Otherwise they tend to give wood a blackish, dead look and fail to reveal the grain. Ordinary yellow pine and cypress have artistic possibilities that few imagine. On these may be used any greenish, greyish or brownish stain ordinarily applied to oak and other hard woods. Samples prepared in this way by manufacturers of wood-finishes are most convincing. Peculiar greys and other odd tones can be secured by exposing wood to the action of various gases or vapors, but wood thus prepared is used chiefly for furniture and expensive trim.

Wood is ordinarily finished in one of two ways—either transparently or opaquely. Transparent finishes or stains are used on hard woods which have grain. Opaque finishes or paints are used on soft woods which have no grain.

Hard woods are usually finished in three steps: filling, staining and surface finishing. Sometimes filler and stain are mixed and put on in one coat. If not, either filler or stain may be applied first, getting different results in each case. Formerly dark filler was always used to show up the grain. New and beautiful experiments show light filler in the pores on top of a darker stain. The surface in either case is then finished with wax or varnish of some good brand. The relative merits of these two finishes must be judged by the people who use them. Varnish scars and "water-spots"; wax does not. Varnish is a better protection against hard wear and secures results quickly. A good waxed surface cannot be produced in a hurry but improves with age. Both wax and varnish require much rubbing to get the proper finish. Wax is rubbed up to a finish, varnish is rubbed down to a finish (with powdered pumice stone and oil). The trouble with using varnish is that most people stop just where they should begin. To lick over a natural wood with yellow varnish produces an ugly color and a cheap-looking surface. Wood when finished should glow, not shine. With few exceptions, shining surfaces should be left to materials which have the ability to shine in their nature—as marble, glass, silver, brass and other metal.

For painted wood, use the best materials and labor, take plenty of time and put on as many coats as are necessary to secure good results. A perfect job of white woodwork will last almost a lifetime. A dull enamel may be used as a top dressing.

Clean light-colored paint with varnish in the last coat is an admirable finish for walls and woodwork of kitchen, pantry and bath.

Practical information on re-finishing old floors or old woodwork is best secured from firms who manufacture the materials for such work.



Paint as a Medium for Interior Decoration

Color Suggestions by National Lead Co.



Y way of foreword, we wish to say that if the furniture and hangings in any rooms shown in this article should give one reader the impression that the whole scheme is too elaborate for his simple house, or should impress another reader that the scheme is not elaborate enough and is unworthy his more sumptuous mansion, let each observe that color harmonies remain constant, whether the furnishing materials be expensive or modest. Four walls, a ceiling and a floor are elements common to every room and are the essential factors to be dealt with.

The color harmonies we show are, therefore, suitable for the simplest houses modestly furnished, as well as for elaborate homes rich in expensive hangings, oriental rugs and art furniture. Not only are the color harmonies suggested suitable for both high-priced and modest dwellings, but the merits of paint as the finish for walls and woodwork are fully set forth for all classes of houses. There are certain rooms where, if they can be afforded, expensive woods in natural finish are often very desirable for the trimming, but in all ordinary cases the varied and harmonious tints as well as the beautiful and sanitary finish obtainable with paint are most desirable. Also for the decoration of walls and ceilings there is much to be said for the fine gradations of tints obtainable with paint, and from a sanitary point of view that material's impervious finish is highly to be commended.

Color plays an important part in our comfort, happiness and health. No room is successful unless harmony of color has been taken into consideration. Many otherwise beautiful houses fail because conflicting colors have been selected or because the rooms have not been treated in relation to each other. No room can be treated independently without a loss to the general harmony of the house.

Color has the power to alter the apparent proportions of a room. Red contracts; blue and yellow expand. Green, unless very dark, has little effect upon the room, keeping the walls, as decorators say, well in place. Tan, gray, blue and pink have the effect of adding space, while brown, unless very light, has the same quality as green.

To the majority of people, green is restful, red stimulating and blue depressing; but under certain conditions, these colors may have quite a different effect. Blue when combined with green or certain tones of yellow is anything but depressing, while red, if placed in a dark room, will so absorb the light as to make a room positively gloomy. Green holds its own, but is warm or cold according to the proportion of blue or yellow of which it is composed.

Pure yellow is the most sunshiny color in existence and is far more satisfactory in a north room than red.

After the color for a room has been decided comes the question of treatment. The beauty of a plain wall needs no emphasis. In rooms where there are pictures and bric-a-brac a figured wall is often very confusing. It is, therefore, with relief that we turn to the restful, quiet effect of plain walls.

The value of a painted wall from a sanitary standpoint is well known, but comparatively few have realized, until recently, the possibilities of the painted wall from the viewpoint of beauty. Our illustrations, representative of different types of rooms, show wall effects obtained by the use of solid tints in combinations and of pure white lead and pure linseed oil tinted to suit various requirements and tastes.

While it must not be thought that the color harmonies suggested in these pages are entirely unsuitable for figured effects in the wall decorations, it will be seen that a variety of charming schemes can be obtained by the use of plain colors and that for certain rooms they are possibly more desirable in a home than figured effects. Plain colors certainly contribute a restful atmosphere very pleasing in these days of restless activity. Quiet surroundings tend toward the simple life.



Plate I. Hall



Plate II. Living-Room

THE COLORED PLATES

Twenty suggestions for the proper blending of color in the decoration of various types of rooms are given in the following pages.

PLATE I. HALL

SUGGESTION No. 1, as in illustration: walls, yellow; ceiling, old ivory; trim, white; mahogany doors.

SUGGESTION No. 2: walls, forest green; ceilings, yellow; trim, white; mahogany doors.

In this hall the architecture is decidedly Colonial and the color scheme of our first suggestion is on strictly Colonial lines—yellow walls, mahogany doors, white paint and mahogany are an attractive combination. In a hall where the light is insufficient, it is necessary to choose a light-producing color and in this connection nothing is better than yellow, for it suggests sunlight. It also strikes a cheery note of welcome especially suitable for a hall. Tints are also good, but shades should be avoided in dark rooms.

The second suggestion for the hall combines yellow and green; yellow in the ceiling, green in the side wall. In a well-lighted hall green is very satisfactory, but here as elsewhere in a house the color schemes of the surrounding rooms must be taken into consideration. No room should be decorated and furnished independently of the others, else discord will result.

Oriental rugs with a soft blending of color are advised with either scheme.



Plate III. Living-Room

PLATE II. LIVING-ROOM

SUGGESTION No. 1, as in illustration: walls, soft red; ceiling, ivory; trim, light Flemish; tiles, green; curtains, green; rug, red predominating.

SUGGESTION No. 2: walls, light orange; ceiling, ivory; trim, deep green; curtains, old blue; rug, green with old blue and orange border.

Here we have in our first suggestion, a decided but not a strong red. It is chosen to blend with the fine oriental rug which has a good deal of the soft pinkish-red used so effectively by rug makers of the East. This red is particularly effective with Flemish woodwork or with all stains except very light ones. Green harmonizes with this red, and green will be found in the tiles and curtains.

A more radical treatment is seen in suggestion No. 2. Orange forms the walls, while blue and green are used in the harmony, the trim being green.

PLATE III. LIVING-ROOM

SUGGESTION No. 1, as in illustration: walls, medium olive; ceiling, slate green; trim, olive brown; curtains, Gobelin blue; upholstery and rugs, green and blue with a dash of orange.

SUGGESTION No. 2: walls, Gobelin blue; ceiling, old ivory; trim, medium olive; curtains, green; upholstery, rugs, etc., blue predominating with olive green and a little clear yellow.

In our first suggestion we have combined green and blue, two colors which properly blended give very good results. They are particularly effective in a room of the character illustrated which is not a formal book room, but used as a general



Plate IV. Bungalow

living-room. The number of objects in this room makes a plain wall especially effective. If a figured paper should be used in place of the plain wall, most of the charm of the room would vanish. A plain effect is necessary in a room where there are many pictures and much bric-a-brac.

With blue and green a third color used sparingly adds to the harmony. Orange is the complement of blue and thus makes a harmony of contrast with blue, while it forms an analogous harmony with green, inasmuch as both orange and green are composed in part of the same color, namely yellow.

In suggestion No. 2 the walls are blue, the trim is green and the rugs are mainly blue, with some green and a little clear yellow. This is a related harmony, not a complementary one, inasmuch as green is formed by mixing blue and yellow.

PLATE IV. BUNGALOW

SUGGESTION No. 1, as in illustration: walls and ceiling, forest green; trim, dark gray; rugs, gray, black and red.

SUGGESTION No. 2: walls, golden brown; ceiling, light chrome yellow; trim, deep golden brown; rugs, brown, black and yellow.

This living-room is in a bungalow and there is a good deal of woodwork. In one suggestion it is stained a greenish gray and in the other a brown. Navajo rugs are placed on the floor and the furniture is of that sturdy simplicity suitable in a room of this character. It will be noted that in suggestion No. 1 the general color scheme—red and forest green—is carried out with pleasing effect; in the fireplace, red brick being used adds cheerfulness and warmth to the general tone of the room. Little accessories, which add greatly to the attractiveness of such a room as this and at the same time are appropriate and harmonious, are branches



Plate V. Library

of leaves or pine needles banked on the mantel, and lighting effects and andirons in copper or Pompeian green metal finish.

In suggestion No. 2, where it is desired to carry out a general scheme in brown, black and yellow, a fireplace of native stone or cobbles makes a very artistic setting for the logs, with iron andirons to give the required touch of black. In a room done in these tones, any small decorative accessories should take a brighter hue to offset the more sombre colors. This can be done in the upholstery, rugs, table covers and the use of leaves or flowers.

It will be seen that either of these suggested schemes would be entirely appropriate for either a summer or an all-the-year-round bungalow. No matter what the season, either interior would be inviting and suggestive of cheer, restfulness and hospitality from the moment one stepped across the threshold.

PLATE V. LIBRARY

SUGGESTION No. 1, as in illustration: walls, golden brown; ceiling, pale yellow; trim, forest green; curtains, yellow.

SUGGESTION No. 2: walls, medium olive; ceiling, pearl gray; trim, dark gray; curtains, green; upholstery, gray, green and a little pure orange.

The requirements of a library differ from those of a hall or, in fact, from any other room in the house. Quiet effects are best here, providing the restful atmosphere so essential in a book room. Brilliant color treatment is out of place in this room and should be reserved for rooms where the limitations are less defined.

In the bedroom, for instance, a great variety of color treatments may be used as indicated by the owner's taste; the dining-room, also, offers a wide range of



Plate VI. Dining-Room

color treatment; but the library is essentially the place where not dark, but quiet, tones should prevail, giving an atmosphere of restfulness and the suggestion of study, thought or a care-free recreation hour with one's favorite book; consequently, the prevailing tones of the room are rather limited in scope.

The suggestions given above are made with this idea in view.

This does not mean, however, that a monotonous effect is to be desired. In fact, it is to be carefully avoided. A gloomy reading-room is as disastrous to the enjoyment of a good book as an ugly dining-room to the enjoyment of a good meal. The library, of all rooms in the house, is the place where one wants one's favorite pictures, bits of rare ornament, and other intimate touches that mean so much to the attractiveness of a room like this. In fact, by a library, you can almost judge the general taste of the owner of the house, for it is here that it is most clearly expressed.

A fireplace is an almost necessary adjunct and this has been suggested in both the treatments for this room. A very appropriate touch may be added to the fireplace by the lettering in gold of a favorite and appropriate motto on the wood-work just over the mantel.

The monotony of the room may further be broken by pieces of statuary, either marbles, if one is so fortunate as to own them, or good plaster casts set in a corner where they will stand out well against the background of the wall or hangings. Settees built in or around the fireplace or windows, also break up the lines of the room and add to the suggestion of general comfort and, then, it is always pleasant to add a small reading table with a drop-light cozily placed near the fireplace and within easy reaching distance of the book-shelves. Rugs, curtains, upholstery provide the color notes, together with book bindings, pictures, etc., remembering that frames and bindings should match the general scheme.



Plate VII. Dining-Room

PLATE VI. DINING-ROOM

SUGGESTION No. 1, as in illustration: walls, trim and doors, white; hangings and rug, Gobelin blue; fixtures, gold.

SUGGESTION No. 2: walls, trim, etc., light gray; hangings and rug, old rose; fixtures, silver.

This dining-room is Colonial with a strong Louis XVI feeling in the over-mantel and over-doors. Above all else, the dining-room should be attractive and cheerful, and yet dignified enough for formal occasions. The suggestions that have been made here for color effect have carried out this idea, although both rooms have been made to suggest Period treatment.

The dining-room of to-day has few pictures on the walls, the decoration of the room depending nowadays largely on fine color treatment, and such accessories as chandeliers, sconces, mantel decorations, and any ornaments on the walls that are harmonious and appropriate. Rugs and upholstery should be dark enough not to show soil, and yet of a tone to contrast with the furniture and walls. The rugs that have been suggested for the two treatments above will be found to carry out this idea.

The first suggestion is to use white walls, white trim, a rug in which Gobelin blue predominates, plain blue hangings at the windows and all hardware of brass. There is a good deal of white here, but the ruddy tones of the old mahogany furniture and the mahogany mantel, together with the rug and the curtains, prevent any feeling of coldness. Old portraits fit well into this background, which is too true to the period to permit of modern pictures.

In the second suggestion will be found a treatment used extensively with Louis XVI woodwork, and that is light gray. Instead of white paint, light gray



Plate VIII. Bedroom

is used and in the place of blue we find old rose predominating in the rugs and curtains, while all hardware is of silver finish.

PLATE VII. DINING-ROOM

SUGGESTION No. 1, as in illustration: walls, medium olive; ceiling, slate green; trim, Venetian red; curtains, green; rugs, green, red-brown and a little blue. Old blue china and some blue in upholstery.

SUGGESTION No. 2: walls, light chrome yellow; ceiling, ivory; trim, forest green; curtains, yellow green and old blue; rug, green and blue.

The first suggestion is a decidedly green scheme, but it is an olive green blending well with the red tones of the woodwork and harmonizing with the old china of the mantel and plate racks. Where it is preferred to have the reds a little more prominent, this end may be gained by having a red-brick fireplace, as suggested above, copper andirons, furniture of mahogany, or a stain that resembles that color, and a rug in which reds are combined with dull browns and blues in the general green background. In such a treatment, any ornament or additional decorative feature in other colors will not look out of place, but will be found to blend perfectly. There is also a good deal of old brass in this room which is effective with the yellow-green tone.

A good deal of yellow is found in the second suggestion. The walls are chrome, the trim a rich green, while yellow, green and blue form the harmony. This makes an especially cheerful room and would be particularly desirable where one wished to use it as a breakfast or morning room. Here a charming contrasting touch may be added by having the furniture of an oak brown upholstered in a



Plate IX. Bedroom

tapestry stuff that combines the greens and blues that are carried out in the rug, and suggested in the general color scheme of the room.

PLATE VIII. BEDROOM

SUGGESTION No. 1, as in illustration: walls, light blue; ceiling, pale blue; trim, soft white; curtains, blue and white.

SUGGESTION No. 2: walls, old ivory; ceiling, ivory; trim, pale apple green; rugs, green, ivory and old rose; curtains, green and old rose on old ivory background.

The bedroom suggests always the brightest, daintiest colors that can be produced. Cheerfulness, coziness with abundant suggestions of warmth and comfort for winter and of coolness in summer should be introduced into this most vital room in a household.

Suggestion No. 1.—the blue room—lends itself to a great variety of treatment. For summer, the rugs may be in the Delft blue and white colors and the lounge and chairs covered with dainty slip-covers of the same old blue and white chintz. In the winter, rugs that combine dark red with blue may be substituted, and the upholstery of the furniture, when its covers are removed, should disclose a similar color scheme. The furniture in such a room should be either mahogany or white, or a combination of both, as in the above suggestion.

Suggestion No. 2 is particularly effective; nothing daintier could be imagined than the combination of ivory, apple green and old rose. Yet, cool as these tones are, the room can be delightfully suggestive of warmth by the liberal use of old rose in hangings and upholstery, and the use of mahogany for the furniture.

Our first suggestion calls for a blue and white scheme which is particularly



Plate X. Kitchen

effective in a bedroom, our second for a blending of ivory, apple green and old rose.

PLATE IX. BEDROOM

SUGGESTION No. 1, as in illustration: walls, pale pink; ceiling, white; trim, white; rug, moss green; curtains, green and pink on an ivory ground.

SUGGESTION No. 2: walls, pale lavender; ceiling, white; trim, white; rug, moss green; curtains, lavender and green.

Bedrooms are most successful when they are simple, and both our suggestions are removed from elaborate effects. This one is Colonial in style and lends itself well to a variety of treatments. The plain, lighter-tinted walls make an attractive setting for pictures and tone well with either mahogany or birch furniture. A comfortable lounge upholstered in cretonne of a figured pattern, a brass fire-screen and bed-spreads of either some white material or figured cretonne, will break up the plainness of the room and lend a touch of warmth and suggestion of comfort.

With the second suggestion, any decorative accessories, such as upholstery, bed coverings, etc., should be in delicate gray greens or a deep violet with green and gold combined. With plain walls figured curtains are usually attractive and we advise cretonne with both schemes to match the upholstery of lounge and chairs. A figured rug could be used instead of a plain one with equally satisfactory results.

PLATE X. KITCHEN

SUGGESTION No. 1, as in illustration: walls, cream; ceiling, old ivory; trim, white; tiles, white; linoleum, blue and white; rugs, blue and white; china, blue and white.

SUGGESTION No. 2: walls, white or cream; ceiling, white or cream; trim, old blue; tiles, white; linoleum, blue and white, etc.

In the kitchen we have suggested blue and white for both schemes, with a slight variation in the treatment. In the first scheme we have advised white woodwork, white tiles, blue and white linoleum, cream walls and a lighter ceiling. Dark woodwork forms the basis of the second scheme, with white tiles, walls and ceiling, and blue and white rugs and linoleum.

Blue and white are always satisfactory in a kitchen, forming a particularly clean and inviting scheme, also making a most effective background for kitchen utensils, which are now ornamental as well as useful.

The kitchen of yesterday was a place to which little attention was paid. No attempt was made at decorating and such a thing as any attempt at artistic effect was unheard of. But with the progress of sanitary ideas in housekeeping, the place where the food is prepared became of more and more importance. Housekeepers began to insist upon tinted instead of papered walls, porcelain sinks came into use, floors began to receive proper attention. Later, it was seen that the kitchen should be made as attractive, within its limitations, as any other room in the house.

The kitchen of to-day, then, presents a dainty, inviting appearance. Some of the more elaborate kitchens have walls that are faced part way with white glazed tile and painted above, but a very dainty and equally sanitary effect can be obtained by the use of paint as suggested above. Dainty curtains of dotted swiss muslin or cretonne at the windows complete a room that attracts the housekeeper who is doing her own work, and helps materially in the solution of the servant problem.

HOW TO GET THE MOST OUT OF PAINT

Paint to be right must not be only pure unadulterated white lead and pure linseed oil, but should be mixed fresh only a short time before using. Moreover, and most important, the ingredients should be carefully apportioned according to the particular surface it is designed to cover.

Different surfaces require different treatment. Soft woods drink in paint easily; it has to be forced into hard woods. Some turpentine is needed, and less oil, in the latter case. Old wood requires different treatment from new unpainted wood, and brick needs different paint from either. Variations in temperature also call for variations in paint.

While woodwork and plaster walls should be painted throughout with white lead and linseed oil as described, iron work, such as heaters, pipes, registers, etc., should be painted first with red lead mixed with linseed oil, and then finished with white lead and oil tinted to suit the color scheme of the room.

For interior decoration, the beautiful soft white peculiar to white lead is especially valuable. Every woman appreciates it who has noticed the effect of glaring, bluish-white walls and ceilings on gowns and complexions, particularly at night under artificial light. And this characteristic softness of white lead is carried into the infinite tints and shades made with it; for most tints, especially the more delicate ones, require such a tiny bit of coloring matter that the texture and peculiarities of the white lead remain dominant.

Many of the large paint manufacturers now employ experts whose business it is to furnish ideas and suggestions for both exterior and interior work in wood, brick, plaster, concrete and metals. It is a good idea to open correspondence with them when you have reached this point.

Exterior Decoration

Color Suggestions by National Lead Co.



THIS article is intended to answer two questions of great importance to every homemaker. First, how to preserve and beautify the houses we live in; second, how to make the most of building plots limited in area.

We Americans are fast learning that it is just as easy and just as inexpensive to have homes that are tastefully decorated and grounds that are well planned as it is to have them fantastic and unattractive. With all our hurry we are somehow finding time and means to care about what is artistic.

We are learning that good taste is a higher and a safer standard than a mere fad or style or fashion. Good taste outlasts any passing fancy and is never freakish. It rests on the laws of harmony, which do not change.

One other thing which we have found out is that the selection of the right color scheme for one's house adds dollars and cents to the value of the property as well as gives satisfaction and pleasure both to the owner and his neighbors.

The house owner's first need is a clear idea of what goes toward the making of an artistic home, and the first principle in that idea is the rule of simplicity. A scheme of decoration that is simple and appropriate is likely to be pleasing and, therefore, successful.

Those two rules of simplicity and fitness are of the highest importance when applied to the painting of the house and to planning the bits of landscape around it. The house must appear to fit into the place where it has to stand. The way it does fit depends a great deal upon the way it is painted and the way the grounds about it are laid out. There must be harmony in the color scheme itself, harmony in the plan of the grounds, harmony between the house and its neighbors.

The value of this article lies in the fact that the suggestions in it are definite and practical. In order to enlarge its scope and usefulness, we have illustrated it with small colored engravings, showing houses to which the same or similar treatment has been successfully applied. Each house shown represents an actual example of harmonious and tasteful painting. So large a variety of suggestions is sure to include some that will meet the needs of any inquirer.

The grounds and buildings of a suburban or country home, carefully planned, will be an unfailing source of pleasure to the owner and to his appreciative neighbors. Fortunately, a good example is more likely to be followed than a bad one, and the existence of one beautiful place, however modest, will stimulate the owners of adjoining properties, often transforming a whole neighborhood.

In the colored engravings showing ten model schemes for the artistic painting of various styles of houses, it has been the attempt to give the general impression which the actual house would make on the observer, not to show the exact tint of the paint in the pail. Shadows and high-lights are retained in the picture to preserve the natural effects.

No attempt has been made to present expensive and pretentious houses only, nor to offer correct models for building new houses. Rather, we have tried to show what can be done with various types of actual and prevalent houses, ranging from the simple and modest to the more elaborate and imposing, by tasteful

selection of color schemes to suit the type to which one's house belongs.

THE COLOR PLAN AND THE PAINT

A house which is set closely among trees or other verdure should not be painted green or olive, though there may be no objection to green trimming. Colors contrasting with the surroundings are better for the body.

If a house is low, with a tendency to "squattiness," a dark color should not be used. Paint it light and preserve the benefit of what height it possesses.

Nothing is better than pure white for certain styles of country and suburban

houses, especially if set snugly against a green background and amidst green surroundings. Naturally, however, white is a poor scheme for factory towns or other dirty localities. A very light gray, like French or pearl gray, may be more durable than pure white, and yet give nearly white effects.

Houses with shingled upper stories, as a rule, should be painted on the lower story a lighter shade than the shingles. The shingles may



Plate A

Suggestion No. 1. Body, trim and sash, white; roof, deep green. Suggestion No. 2. Body, yellow; trim, white; roof, weathered.



Plate B

Suggestion No. 1. Body, sash and trim, including porch rail and columns, white; porch floor, medium slate; shingles, weathered; blinds, green. Suggestion No. 2. Body, cream; trim and sash, white; porch floor, pearl gray; shingles, weathered; blinds, green.

be Indian red, dark brown, dark green or some olive shade. The body should harmonize, as light or dark olive with Indian red, cream with browns, the grays with dark green or dull red.

Not all colors and tints are equally durable. Cold colors, like the grass greens, blues and certain cold shades of yellow, hasten the deterioration of the paint film.

This is due to the fact that they do not reflect or turn back the heat rays of the sun, but allow them to penetrate the film.

Tints based on the reds, browns, and blacks are, as a rule, the most durable. Thus the grays, the slates, the browns, the richer yellows, etc., are excellent for wear and are at the same time the most pleasing on the house. We therefore recommend them most frequently in our designs.

Perhaps a word should be added for the benefit of those who may have always thought of white lead as good for white paint only. The fact is, white is and must be used as the base in making all paints of light tint and

many paints of dark shades, too. Black and certain intense shades of blue, red, brown and yellow can be produced without using any white base, but by far the greater number of tints, especially those most admired for house paint and the most durable for that purpose, are made by mixing a small portion of tinting color with a large portion of white lead. With some colors a few ounces are enough to tint 100



Plate C

Suggestion No. 1. Body, colonial yellow; trim and sash, white; roof, weathered; blinds, green. Suggestion No. 2. Body, French gray; trim and blinds, dark olive; sash, white; roof, weathered.



Plate D

Suggestion No. 1. Lower story, band below eaves, trim and sash, white; shingles, weathered; blinds, medium olive. Suggestion No. 2. Lower story, band below eaves, trim and sash, ivory; shingles on upper story, slate green; roof and blinds, medium olive.

pounds of white lead.

MORE IMPORTANT
THAN COLOR

As important as the color scheme is, it is *not* the most important consideration in painting your house. Choose your color scheme carefully, but choose your paint still more carefully; otherwise your beautiful color scheme may vanish in a few months.

Aside from a few perishable tints which cannot be secured in *any* durable material, you practically have an unlimited range of tints and shades to choose from if you use pure white lead and pure linseed oil in all your paint.

Pure white lead and pure linseed oil make a combination which has been

known for generations as the best paint for all general painting. It still stands unequalled, both for durability and for the wide range of its possibilities in decoration. From white down through the widest possible gradations of every imaginable tint and shade, pure white-lead paint, made to order, meets every whim. The user of stock paints is naturally limited to stock tints.

All house paint, except the very



Plate E

Suggestion No. 1. Stucco, natural; trim, including the half timbers and sash, tuscan red; shingles, weathered; blinds, bronze green; porch, chocolate brown; chimneys, red brick. Suggestion No. 2. Body, light terra cotta; shingles, dark brown; trim and half timbering, terra cotta; blinds, dark brown; porch floor, medium slate; chimneys, red brick.



Plate F

Suggestion No. 1. Body, yellow drab; trim, white; roof, venetian red. Suggestion No. 2. Body, white; roof, brown.

dark colors, is made from white lead and linseed oil *or from substitutes made to imitate* one or both of these two standard ingredients. Three things, then, threaten the durability of your paint: first, the adulteration of the white lead; second, adulteration of the linseed oil; third, the use of a very perishable coloring material to tint the white lead. To be sure of getting pure white lead, pure linseed oil and

proper tinting material, the first step, obviously, is to buy the ingredients separately and have them mixed especially for you.

Sometimes imitation paint is represented *as* pure white lead and pure linseed oil. That is fraud.

Sometimes you are told that there is something else in the paint, but that it is put there because it has been discovered that white lead makes better paint if some other white substance is added to it. In the face of pure white lead's long years of undisputed success, *the burden of proof is on the person who proposes to tamper with it.* Don't let experiments be made on *your* house at *your* expense.

HOW TO PROTECT YOURSELF

What the property owner wants is a painting job which will last and look well a reasonable length of time. Experience has shown that paint made of pure white lead



Plate G

Suggestion No. 1. Body, tuscan red; trim, cream; roof, weathered. Suggestion No. 2. Body, chocolate brown; trim, dark brown; roof, weathered.



Plate H

Suggestion No. 1. Lower story and trim, ivory; shingles, deep green; roof, weathered; blinds, green. Suggestion No. 2. Lower story, cream; trim and sash, pearl gray; shingles and blinds, dark brown; roof, weathered.

and pure linseed oil wears, is reliable, gives the property owner his money's worth. Specify those materials and see that your painter uses them. Learn the name of a good brand of linseed oil and white lead and specify it.

Have the white lead and the other ingredients brought to your premises and mixed there. This is not only surety that you get the

materials you specify, but it insures the paint's being mixed fresh and for your job. First thin the white-lead paste by mixing with oil. Tinting colors should next be added, then more of the oil. Finally, the turpentine, if that material is to be used, should be stirred in, and for outside work not more than one part turpentine should be used to five parts oil.

A slight saving at the expense of durability will be costly in the end.

Use good materials mixed right and put on in coats of proper thickness. A job will result which will put off the day of repainting several years. That is true economy in painting.

Finally, employ a good painter. This point is given last, but is of prime importance. It is not economy to set unskilled labor at a job of painting just

because anyone can spread the paint on in some sort of fashion. The painter's experience in diagnosing the needs of the wood, and his knowledge of just the right proportions of lead, oil and drier to fit the case, make him absolutely necessary to a good, economical job of painting. Like good materials, a good painter pays for himself.



Plate 1

Suggestion No. 1. Body, neutral drab; trim, dark olive; roof, weathered; porch roof, Indian red; sash, black. Suggestion No. 2. Body and trim, white; roof, weathered; sash, tuscan red.



Plate J

Suggestion No. 1. Body, yellow; trim, white; roof, weathered; blinds, green. Suggestion No. 2. Body white; blinds, green; roof, slate green.

Color schemes in this article by National Lead Co.



Oriental Rugs

JOHN KIMBERLY MUMFORD

Illustrated by Leading Manufacturers



HIS is a practical book. Its purpose is to help the householder to know the best things for the equipment and adornment of his home, and to tell him where he can get them. Therefore, these observations concerning Oriental floor coverings will be of a nature conducive to that end.

It is the custom to say "They have reached the Oriental rug stage," as indicating a milestone on the way of luxury so far along that to return therefrom to simplicity and economy is impossible. Oriental rugs, to the cynical, suggest merely a full purse and an open one. As nearly as I can discern, the next steps succeeding upon the indulgence in Oriental rugs for the home are the acquisitions of a limousine and a buckram British butler. "Oriental rugs" seem to have become a synonym for extravagance. I am very far from admitting that the inference is sound, but there is without doubt some ground for it. The fault is in the premises. Swift as the advance of the Asiatic floor coverings in popular esteem has been, their increase in price, to the ultimate purchaser, has been even more rapid; but definite knowledge of them has by no means kept pace with either. It is safe to say that comparatively few persons, having purchased one or more Oriental rugs, feel at all certain after the bill has been paid that even though the price was substantial they have secured really worthy and meritorious things.

The peculiar character of the business, dealing as it does with individual products which are not and cannot be standardized, the iniquitous deceptions that have often been practiced and the bitter experiences of many innocent purchasers, together with the suspicious elasticity of prices noticeable in some shops—all these have contributed to widespread uncertainty and distrust. From this point, then, the most natural of mental processes leads to the conclusion that to buy these fabrics, of which one knows so little save that they please the eye, and to pay more for them perhaps than machine-made carpets cost, is foolish improvidence.

But is it?

While I am a firm and unalterable partisan of the Oriental forms of floor covering as compared with any and all others, I certainly am not such a bigot as to deny the large virtues of a multitude of European and American carpetings. I admit with more than willingness that for certain decorative purposes many of them are well-nigh indispensable. I recognize, as the Oriental rug dealer is so loath to do, that there are places where the Persian or Turkish rug or carpet, with its opulence of color and plenitude of patterns, is as offensively out of place as a pink domino at a funeral.

To me it is a delightful sign of genuine artistic progress in America, to see a man with unlimited means courageously putting rag carpets and prim, old-fashioned furniture in a farm-house country home, where he is trying, as a respite from town splendor and period decoration, to get back some of the joys of a rural boyhood. But this I maintain—that the scope of the Oriental weavings, old and new, is so great in point of texture, color and design, that the places where they cannot be used to a decided advantage over all other floor textiles are few and very far between.

Believing this, it remains merely to determine whether from a wholly practical standpoint it is good business to buy Oriental rugs.

By “practical,” be it observed, something more is meant than a mere reference to the comparative first cost. A home is something more than a lodgment. It is the empire of the individual. It is what a man works for and what a woman is born for—or at least was until somewhat recently. It is the environment from which children take their earliest and most lasting impressions and their view of life. Whatever of beauty, therefore, whatever of finer suggestion or of real uplift can with due regard to the limitations of income be added to it, must be accounted of material value now and indefinitely far in the future. No amount of expenditure will impart to a house that subtle magnetism which is born only of sympathy, but given the Spirit, and the utmost that can be done to beautify the home is the most sagacious of investments.

That the Eastern rugs, even those of the heavier and more utilitarian textures, possess mystical and yet abiding beauty is not seriously disputed. The general plan of design, the meaning patterns which have endured through centuries, the seemingly intuitive but nevertheless fascinating combinations of color, exercise an instant charm upon man and woman alike. There is always something new to be discovered in the native Oriental rug, no matter how long you live with it, and it is certain that, no matter what your allotted span, the really good rug will survive you, to cheer the declining years of your children and even your grandchildren if you happen to have any.

The reason for this peculiar power of fascination in the Oriental fabric is not far to seek. It is merely that each of these rugs, laboriously made by hand, and representing weeks, months, perhaps years, of patient, unremitting application, necessarily reflects the changing moods and states of mind of the maker. Passing inspirations have found record in its changes of pattern and modulations of color—individual marks, appearing even in the rugs of tribal type, which give a personal touch to each. This is why the Oriental product never palls, but grows in beauty as its years increase and becomes in a way a member of the family. To add this element to the attractions of the home is of value which—according to the individual tendency—may or may not be expressed in dollars. The most approved designs in mechanical carpetings are copied with the utmost exactitude from such Oriental rugs as best lend themselves to reproduction, but the life and personality are lost. It is simply that the machine-made carpet is not the expression of a human soul.

There remain to be considered, then, the more material phases of this important economic problem of rugs. Since in their practical aspect these fabrics are made to be trod upon, it is essential that regardless of their decorative or esthetic merit they should stand wear. It does not lie within any man's province to rail at what he does not understand. Criticism of the materials and methods employed in the manufacture of machine-made rugs and carpets have, therefore, no place in these pages. The mechanisms which create them are ingenious to the point of marvel. The manufacturers are striving, ceaselessly and with increasing measure of success, to bring the Occidental product nearer to the Oriental in appearance, but the processes by which even the humblest Asiatic rug is made are the same primitive processes that have been in vogue in Eastern lands since the

beginning of history. Who that has watched the Eastern shepherds shearing their uncountable flocks and washing the wools in the mountain streams, or seen the dark-skinned women spinning their yarn and weaving it into lustrous rugs on hill-side looms in the Persian uplands, firmly tying knot after knot on the warp, can doubt the honesty with which these fabrics are made? Some rugs are finer in texture than others; sometimes—though seldom nowadays in Persia—the dyes are spurious, but as they come from the loom there is not a dishonest thread in the great majority of these rugs.

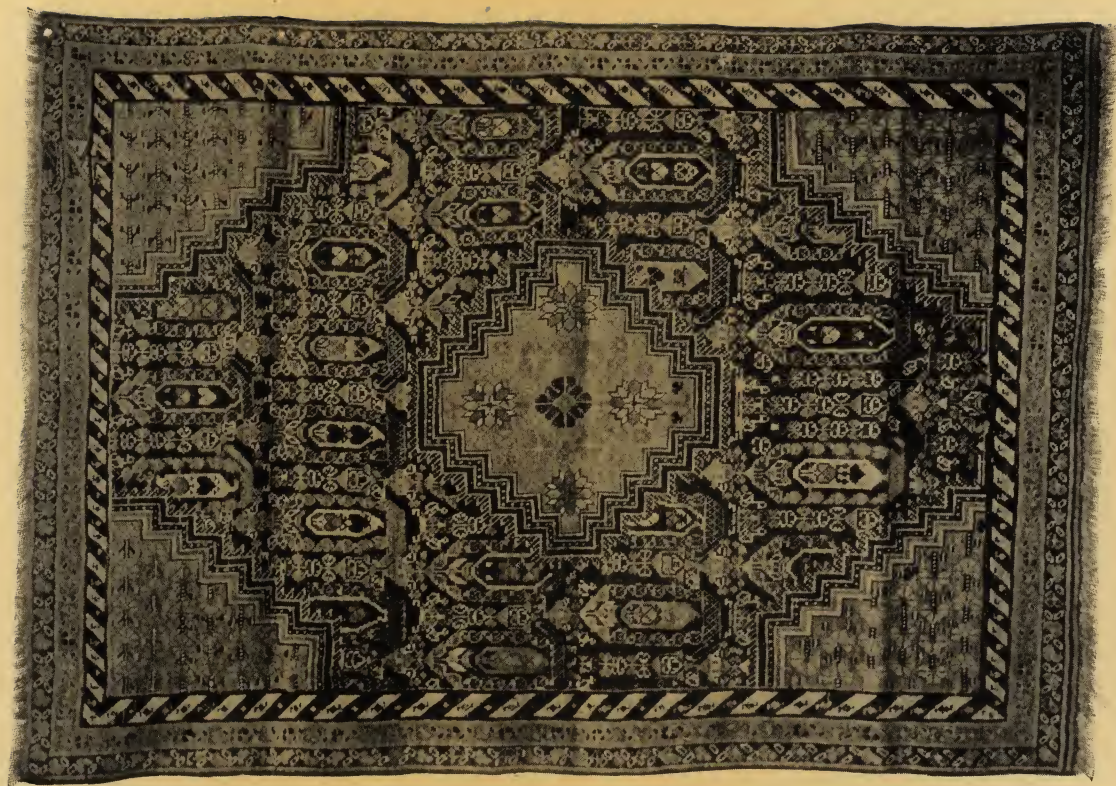
For all that has been told and written on this subject in America in the past dozen years, a great doubt still exists, even among well-informed persons, whether the innumerable Oriental rugs with which America is now flooded are actually all hand woven. They certainly are. Since the demand for Eastern floor coverings became general, everybody in Asia seems to have gone to weaving. The inevitable result is a large volume of inferior things, but of mechanical aids to production there are none, for the very simple reason that there are too many mouths and far too little food in the East, and any effort to found a rug factory or other mechanical establishment in any Mohammedan country, would precipitate an uprising under the leadership of the ubiquitous and demagogic *mollahs*. Witness the wiping out of the tobacco monopoly in Persia and the fate of the wool washery which it was attempted to set up at Oushak in Asia Minor.

This honesty of materials and method is what makes the Oriental rug endure. The repeated washings of wool in pure running water, without the aid even of soap, eventually cleanse it but they do not remove the animal oil, and it is this, as has been demonstrated by recent scientific experiments, that preserves not alone the color but the filament itself. Who has not wondered at the endurance of both? The rug that for three, four, five hundred years has withstood, in Asia, Europe and America, the wear and tear of many restless feet, still smiles comfortably on the world, though with a battered and dilapidated countenance, and a few weeks in the menders' hands starts it on another lifetime.

Where, five hundred years from now, will the curio hunter seek for the "art squares" of to-day? Or, for that matter, why?

Of course, there is the inevitable and almost paramount subject of "washed" rugs. "Washing," in a trade sense, means the chemical process of treating rugs to reduce or change their color. The inquiry is whether this treatment impairs the wearing quality of the fabric. Nine-tenths of the modern rugs and many of the old ones in American markets are washed to meet decorative requirements, and since the methods and materials employed differ, it of course follows that the effects should differ accordingly. There are soft shades, invaluable in certain decorative schemes, which never existed in any original Oriental color schedule. The processes by which these are produced are constantly being improved and the injurious effects constantly diminished. For the collector, my notion is that the washing or doctoring of an antique rug destroys its value as a document, but for the attainment of color results in decoration some modification of the strong color is in most cases almost necessary and the practice has beyond question come to stay.

Considering the Oriental rug from the side of economy, another important point is the possibility of restoration. There are few holes so big in an Oriental rug that a competent weaver, of whom there are many, cannot restore it to completeness both in texture and design, so that the new part shall be as strong and durable as the original. In most cases, where the work has been well done, it is difficult to discover the substitution or distinguish the new from the old. The whole method of construction lends itself to this, and in a way explains the durability of the fabrics. The Oriental hand-woven carpet is virtually a mosaic in wool. All the wear comes on the upstanding ends of the piled knots. Each of these bits of mosaic, so to say, is tied separately, by hand, upon the threads of warp, bound



XVIII. Century Baku.



XIX. Century Royal Bokhara.

ORIENTAL RUGS FROM THE TIFFANY STUDIOS, NEW YORK.



AN UNUSUAL KERMANSHAH RUG WITH SEREBEND BORDER.

(In the stock of JOSEPH WILD & Co., New York.)

In the center is shown a French scene: a gentleman's coach with postilion on one of the leaders, and dogs running at the side; in the central background is represented a Roman galley with swans floating about, and in the rear is easily distinguished another carriage crossing over a bridge. This French picture, carrying with it the genuine French atmosphere, is rarely found in Oriental rugs and is very likely the product of some traveler who had returned to the Orient to execute his foreign impressions in warp and weft. Size 7.5 x 4.6; valued at \$1,000.

with the weft, over and under, and beaten down with a steel or wooden comb to give compactness, strength and resistance. In many rugs, notably those of Kurdistan, a filling of yarns is placed between the two layers or ranges of warp, giving an added solidity and depth to the foundation. Such rugs are well-nigh indestructible.

When the weaver is called upon to repair a hole in a rug, he cuts away the uneven edges so that the gap shall be square or oblong and either runs new warp across it from top to bottom and weaves anew upon this, or else weaves a complete piece on a hand loom and sews it firmly into the fabric. The old knots of worn places, too, can be pulled out and new ones substituted, restoring the design as well as the fabric to its original integrity. When the threadbare spots appear in a machine-made carpet what the owner usually does is to get a few small Oriental rugs to cover them. That is in most cases the beginning of the end, for one Oriental rug in a house will in the course of time bring about the banishment of all other forms of floor covering.

After beauty and durability the question of cleanliness is to be considered. New knowledge of hygiene, the relation of every kind of cleanliness to health, has emphasized the need of it. It is a paramount question in these days, and a perplexing one, when household servants are so much harder to get and so much dearer to pay. The willingness to work seems to be in inverse ratio to the steadily rising remuneration, and whatever insures the maximum of cleanliness in a house, with a minimum of heavy labor, is of vital importance. No argument is required on behalf of the rug on this score. One thorough cleaning a year, by any one of the many admirable mechanical systems, will remove practically all the loose dust and dirt from the foundation. With this, in an ordinarily well-kept house, a thorough sweeping once a week or even once in a fortnight, out of doors, will keep the rugs in condition and the Spring and Fall housecleaning, which once was the chief bugaboo of domestic existence, is distributed normally over the year, and continual cleanliness assured. The small rugs are easily handled, easily cleaned. The large sizes, when rolled on poles, can be moved in and out with but little more labor and the gradual six months' accumulation of dust, which formerly had to be dispersed semi-annually in a shower of carpet tacks and a household upheaval, becomes only a dismal memory.

One or two incidental suggestions regarding the treatment of Oriental rugs may not be amiss in this connection. Beating is not wholesome, but if rugs are to be whipped it should be done gingerly and on the back, care being taken in the selection of the implement used. It will be found that if a rug is laid face down on the floor for a day and walked on, a great amount of dust which otherwise would settle in the foundations will be dislodged and fall out of its own accord. When the rug is removed for sweeping this dirt can be taken up *en masse*.

The last salient point to be considered, I think, is the large adaptability of the rug. A great and unquestionably growing part of the American people, particularly in the centres of population, is in a state of motion. Professional humorists long ago began to refer to the occupants of apartments or flats in large cities as "cliff dwellers." To me the more impressive feature of this sort of existence is that it is so essentially nomadic—as much so, in fact, as that of the wandering shepherds of the East. These, perpetually moving with their flocks, were the inventors of the rug. When they move their flimsy habitation from one grazing ground to another the rug is packed with the tent. It fits the new camp as well as the old. America is not so different. People who pay rent move often. People whose fortunes improve build bigger and better houses. In any of these most of one's rugs are always available.

And if the rug does not fit any floor in the new dwelling? If its color clashes with the new surroundings?

The answer is that in the good Oriental rug there is always a very substantial value in exchange, which can scarcely be said for many machine-made carpets. These, then, are some of the reasons why from an altogether practical point of view the Oriental rug seems to me to be the best form of carpeting to buy. That it involves a greater expenditure there can be no doubt. It is for the householder to balance this difference against the advantages which have here been suggested.

But apart from the material considerations, I believe that the most lasting and far-reaching value of Oriental carpetings in the home lies in their power to beautify, to create an atmosphere of elegance, to lend an indefinable and yet unquestionable note of grace, of comfort and of distinction.

This book is not the place for a technical treatise on rugs, on the manifold sources, designs and textures. "Rugs" is a subject as big as all history. It involves religious symbolisms, race movements, and a thousand other things, each of which is a study in itself.

Neither is it possible to say with finality that this weave or that weave is the best to buy, for these are distinctions of no value in the work of house furnishing. They are for the collector, or for the person who cares to study the Eastern weaving as an art. One rug of almost any weave may be a most attractive and desirable thing, while another from the same district is of relatively small worth. Each is an individual creation and, like its maker, has individual merits and shortcomings. An honest dealer will tell you all you need to know of these things.

For fear you may encounter one whose conscience is less sensitive than his greed is great, exercise your own judgment. Buy a utility rug as you would select clothing for your boy. See first that it pleases you and that it harmonizes with the room where you want to use it. Then make sure, as you would about the clothes, that it is soundly made. For the rest, you must trust somebody. The dealer knows his goods. What is essential, to begin with, is that you should select *him* with care and understanding.

Exterior Color Schemes

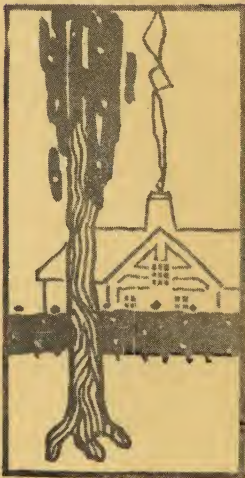
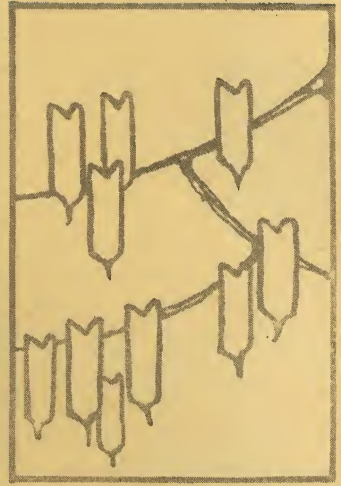
BY HELEN BINKERD YOUNG

Every public-spirited person aims to make his home look its best from the outside, not only for his own satisfaction, but for the sake of others who may pass that way or live near-by. Personal eccentricities should therefore be waived in favor of public good taste. Besides this, the time has come when exterior charm has market value.

Granted that the house as designed is a piece of good architecture, exterior attractiveness becomes largely a matter of color scheme. The setting of suburban, village and country homes in whose interest this article is written, presupposes natural scenery such as trees, shrubs, lawns, gardens, hills, rocks and streams. With this setting the house must be in harmony. The color scheme in general should not be too assertive. An abundance of white, greys, soft greens and browns of various shades will always harmonize with Nature who clothes herself with similar garments. Red is bold unless partially screened by planting. Brick is about the only excuse for introducing a red color scheme. This is broken in mass by jointing and relieved by contrast at doors and windows; whereas a wooden house painted red is impossible. Where red tiles are contemplated for roofing the setting of the house should be wisely planned, for roofs in out-of-town houses are apt to be large in area; hence red would be over-conspicuous unless partially veiled or distanced by trees.

In the case of brick, concrete, cement-plaster and stone dwellings the color scheme is in a sense automatic, being determined by the color of the materials selected. With brick and stone the general color effect can be further regulated by varying the size and color of the joints. Thus rubble or field-stone houses of a given locality may present a variety of color schemes according as wide or narrow joints of white, grey, reddish or black cement (mortar) are used, with trim of some light or dark color. All of these houses will be harmonious with each other and with the landscape which they adorn. Such harmony is infrequent but charming.

In the case of plastered (stuccoed) houses it is somewhat more difficult to get the desired color results than with either brick or stone. Of course a light colored cement and sand produce lighter colored plaster than darker materials, but broadly speaking, the average cement and sand give a cold, dull grey which is rather disappointing. This color may be altered to some extent by adding special mineral colors, or may be lightened somewhat either by the addition of a little lime or the use of special light, warm-colored sand. In the case of very light color schemes, the finishing coat is made of white sand and a special white Portland cement. The addition of mineral colors (specially prepared for this work), brick-dust, etc., should be avoided except as a last resort, for it is very difficult to get a batch of plaster mixed to-day which will match the one mixed yesterday, and a spotted job is apt to result. Where so many factors enter into the color effect it can be wisely decided only by having at hand samples of actual work, done properly by the workmen who are to execute the finished job, the materials being carefully measured and the mix noted for future use. These samples should be looked at out-of-doors and from a distance. If after all the effect is not satisfactory, the desired color may be obtained by the use of special cement paints. This is, however, usually at the expense of the pleasing texture of the untreated surface. Friezes, panels and decorative bands of tile set in plaster walls may be used in endless variety, introducing a sparkling play of color.



Some examples of Exterior House Paint by The Lowe Bros. Co., Dayton, Ohio.



A group of City and Suburban Homes painted with Lowe Brothers' "High Standard" Paint.

From this survey of the subject we may draw the following conclusion: that the color scheme of all masonry houses is inherent in the materials used and because stone, concrete, cement and brick are products taken from Nature in the first place, they will harmonize with natural settings if properly used.

Our attention is therefore chiefly directed to color schemes applied to frame houses. These are shingle, clapboard or both. To preserve the wood, shingle is stained or oiled, clapboard is painted. The recent fad of leaving natural shingles to weather is unwise. A similar effect can be secured from a special stain manufactured for the purpose. The deterioration of wood unprotected from the weather is slow but sure and will make the up-keep of an already non-permanent type of house still greater.

Considered in the big, a house is a composition of wall surfaces and roof surfaces. Logically then, the color or tone selected for the walls should cover all walls and the color or tone selected for roof should cover all roofs; and these two should harmonize so that the house will tie together as a unit in the landscape. Or if a combination of materials is used, as rubble and shingle or plaster and shingle, the color for each material may be the same wherever used, and these must harmonize with each other. Many other combinations could be described, but can be decided in any case by remembering that the main thing sought for is harmonious contrast in the large elements. This contrast may either be of light and dark tones or a subdued contrast in color. Windows, doors, blinds, porches and cornices may be considered as trimmings and treated as such. Windows especially are accents and should contrast with the background of wall. They are in a sense the eyes which give expression to the architectural face of a dwelling. Doorways and entrances should have marked and dignified recognition in the color scheme.

The main thing to avoid with applied color schemes is patchiness. In general, keep all portions of one idea in one color or tone. For instance, in case of a porch post or column, do not paint the base and cap one color and the shaft another. From start to finish it is a post and should be treated as such. In fact the whole porch is one idea. Cornices, brackets and mouldings should not be picked out by color, as light and shade interpret them sufficiently. Useless bric-a-brac and ornaments which cannot be removed should be subdued as much as possible in the color scheme.



Domestic Floor Coverings



THE main consideration in the purchase of floor coverings a few years ago was utility; but with the progress of time, and the educational development of art and color harmony in the household, a change has come about. The rug or carpet must needs be durable, and this means the use of good material and good workmanship. Granted these factors, the question of decoration is the next important. Even the rag carpet, the appropriateness and usefulness of which is decidedly limited, may work in with a decorative scheme; while, on the other hand, modern floor coverings made of the best materials may be an abomination from an artistic view-point. The question is one of figure and color effect and of design and it has been in recent times, and to some extent is still, a vexatious and difficult one.

The best manufacturers have shown a surprising regard for the artistic needs of the modern household, and a degree of good sense that is highly commendable, by their successful working out of the intricate as well as the simple color patterns. Many of these reproductions are a delight to the eye, and could not offend the most captious and critical collector.

The wool used for carpet making is different from the wool used in making cloth in that it must have unusual features of firmness and strength in order to obtain the necessary weaving and wearing qualities. The wool used for weaving cloth is so soft that it would not stand the strain of constant walking over for any length of time, a strain for which carpet must be prepared. The wool for carpets and rugs must be tough and long; this comes from comparatively desert countries, where the native sheep live on exposed and almost barren mountains, thus needing and having a tough and hardy coating of wool to protect them from certain hardships and rigors of climate.

The rug makers of the Orient have never lost their pre-eminence. Persia has always supplied rugs to the rest of the world, from the days when the Western world centred about the Mediterranean to the present. The loom is an aboriginal instrument, and in its crude and undeveloped types has found its natural sphere of permanence in the slowly moving East. In the centre of some of the older rug weaving districts the effects of modern mechanical advances are somewhat visible, but this is not at all marked. Collectors are careful to discriminate between the earlier products of the East and the later, wherever the later shows itself inferior. But where the modern Oriental product measures up to the standard of the ancient, there is little discrimination. The weaver of to-day follows such a slow process, that it puts the genuine Oriental product out of the question in many cases.

People of taste cannot help but be highly pleased with the enterprise which the manufacturers of floor coverings show in advancing the interests of the various branches of art connected with their trade. Here is a business in which the representative firms seem to be always alert and anxious to produce something better each succeeding season. There are so many good selling staple floor coverings that the temptation to be satisfied with what has been accepted in the past must be great, and the fact that the manufacturers do not rest on what has already been accomplished makes praise of their progress all the more deserved.

The average rug buyer knows very little about the texture of the various makes offered, and the difference between the methods of dyeing and weaving. Therefore these few simple points are offered as a help to those who purchase American made rugs for the first time, or have had little experience.

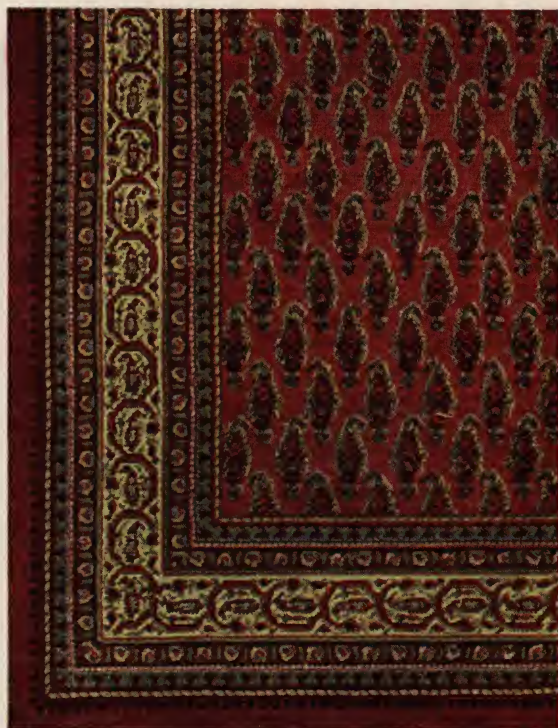
Rugs made to order to match a certain color scheme in some particular room are now much more popular than they were a few years ago. It was only in the very finest residences of the wealthy that rugs woven to order appeared, but of late there has been a tremendous development along the lines of "Special" rugs, and the price of many of the various fabrics are within the reach of furnishers with moderate means. Not very long ago rugs were chosen more on account of being the correct size than on account of being the correct color, but practically everyone now understands the advantages of color harmony and simplicity of design, with the result that the demand for rugs woven to match the color and decoration has largely increased.

The first rival to the Oriental rug was, of course, the magnificent French Savonnerie and the coarser weave of Gobelin tapestry now called Aubusson, after the village of that name. After the revocation of the Edict of Nantes many expert weavers left their homes in France and settled in the village of Wilton, in England. It was in this village that the first Wilton carpets were made, but the factory is now famous for the manufacture of what is called in England "Real Axminster," and sold in the United States under the name of "Hand Tuft." This English factory was given a Royal Charter in 1701, and is still in a very prosperous condition, under the financial backing of the Herbert family, the head of the house, Lord Pembroke, taking a very personal interest in the development of the industry.

These rugs are entirely made by hand by exactly the same methods as the Oriental rug in any color, shape or design, and in any size without seams. It is probably possible for European carpet weavers to tie as many knots to the inch as an Oriental; probably the reason it is not more frequently done is the great expense of European labor as compared with the cost of labor in the Far East. There have been, though, many rugs woven in the Wilton factory containing as many as 600 knots to the square inch. Some years ago a branch of this original factory was started in the State of New Jersey, but the high prices paid for hand-weaving made it impossible to compete with similar fabrics of European manufacture and the factory was abandoned. Similar rugs to the "Real Axminster" of Wilton are made in Ireland under the name of "Donegal," and in other towns in England; but the great centre of this industry is now in Austria, where there are a great many factories in a very prosperous condition. The output of these factories is sold in this country under the name of Austrian Hand Tuft. Germany exports a great number, but the quality is generally considered inferior to the Austrian weave. There is also a very ancient factory in the village of Deventer, Holland.

In velvet rugs, of which there are several qualities on the market, are found all coloring in both Oriental and floral designs, and practically the same designs are found in the tapestry Brussels. In a tapestry rug the wool is woven in a close loop; the velvet carpet is woven very close, and the surface is then sheared, cutting

CHAUMONT SEAMLESS CHENILLE RUGS



PATTERN No. 553. SEREBEND. 16 Regular Sizes. Also made to order in Special Lengths, loom widths, up to 12 feet wide. Regular 9 x 12 stock size, and colors, \$50.



PATTERN No. 525. CHINESE. 16 Regular Sizes. Also made to order in Special Lengths, loom widths, up to 15 feet wide, and in special colors. Regular 9 x 12 size and colors, \$50 each.

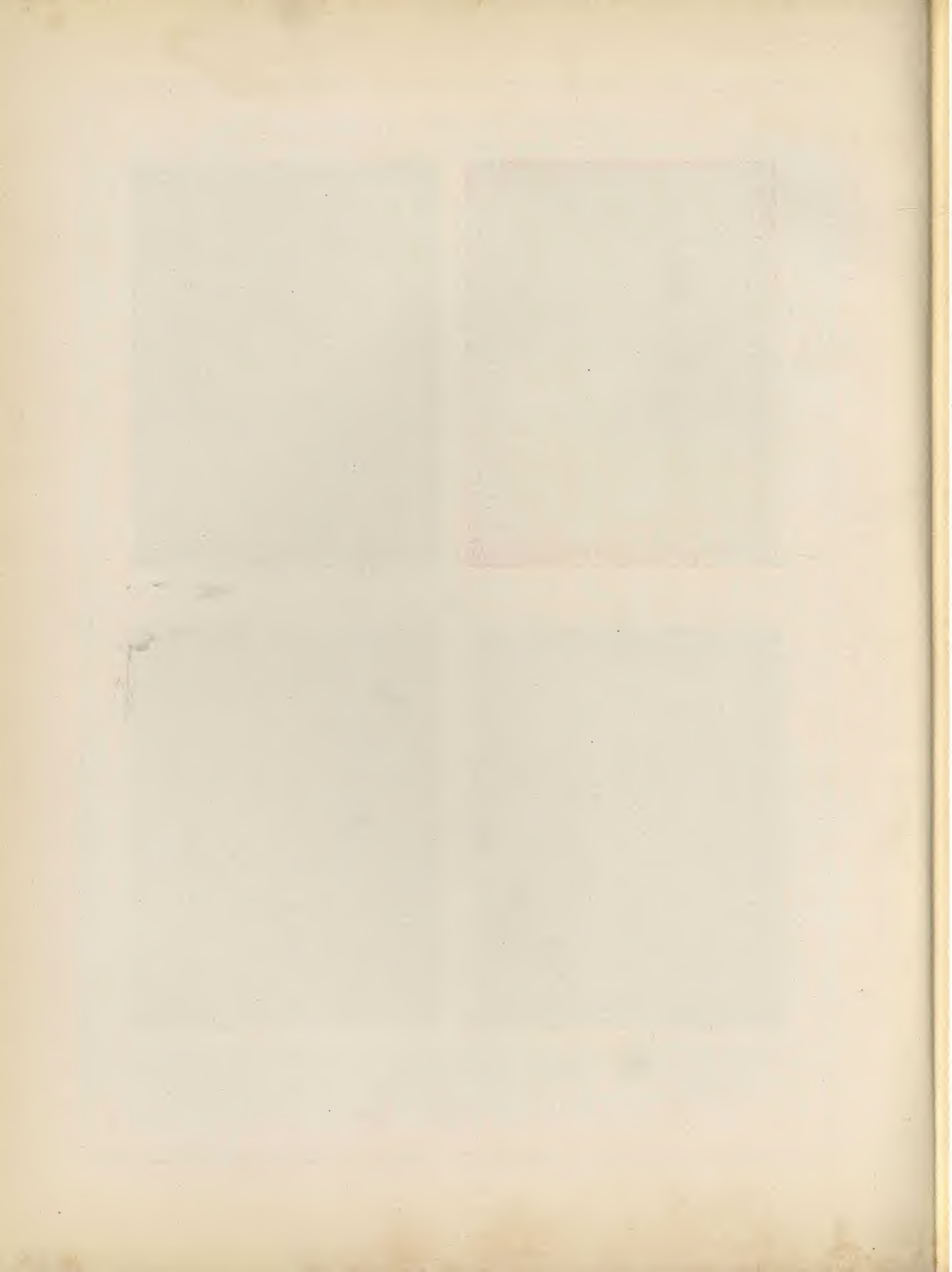


PATTERN No. 508. TWO-TONE BLUE. 16 Regular Sizes. Also made to order in Special Lengths, loom and odd widths, up to 15 feet wide and in odd shapes. Regular colors: Brown, Dark Green, Red, Light Green, Tan, Blue. Special colors made to order. Regular 9 x 12 size and colors, \$50 each.



PATTERN No. 512. A TWO-BAND BORDER. DARK GREEN. 16 Regular Sizes. Also made to order in Special Lengths, loom and odd widths, up to 15 feet wide and in odd shapes. Regular colors: Brown, Dark Green, Red, Light Green, Tan, Rose and Blue. Special colors made to order. Regular 9 x 12 size and colors, \$50 each.

W. & J. SLOANE, DISTRIBUTERS, NEW YORK



all the loops. The seamless rugs are about ten per cent cheaper than those made in one piece.

The Wilton carpet differs from the tapestry in that a better grade of wool is used in the Wilton, which is dyed and woven in. Tapestry carpet is made of printed wool, makes a cheaper rug, and may always be distinguished by the blurred appearance of the figures, while the figures on the Wilton rugs stand out clear and sharp. The Wilton is a sheared surface, as well as the velvet.

For many years the Wilton rugs have been successful by reason of their close and faithful reproduction of the Oriental prototype, never changing nor altering the designs, detail or tint of color in the least. The newer Wiltons still further advance the art of rug weaving, and the finest details of the Senn, Tabriz or Kahans are followed with extraordinary accuracy.

The Axminster carpet has a coarse warp; the seamless Axminster rug is the heaviest seamless rug made in the United States, and is more suitable for the larger rooms—being an expensive fabric. The Chenille Axminster is made of the very finest wool, woven in a particular fashion, which gives it a rich appearance, and makes it last a lifetime. Figured and two-toned effects are seen in the Chenille and plain Axminster rugs, as well as a few select Oriental designs—Khiva, Bokhara, Ferraghan, and Sarab designs; also Chinese designs.

The Smyrna rug is reversible, a quality which particularly recommends it to the careful buyer; both sides are exactly alike. The Smyrna rugs are made all in one piece, and the fabric is an excellent one to wear. In the best grades the patterns are Oriental. The colorings and the designs are so exact that very few people whose taste leads them to buy genuine Orientals can resist the rug of American manufacture, with two wearing surfaces, and at a price which figures a very great saving.

Some years ago, in order to meet the increasing demand for made-to-order rugs, a new weave was invented, now known as Chenille Axminster. This rug is similar to the Hand-Tufted rug, inasmuch as it can be made seamless in any width, length, color or design; but a more intricate detail can also be produced than can be obtained in any but the most expensive quality of Austrian or English Hand Tuft. The original home of this weave was Glasgow, in Scotland, but there are now many factories in the United States busily engaged in catering to people of refined and educated tastes who require rugs of simple patterns, or as is so frequently used in America's finest homes, of no pattern at all, simply a plain centre, with plain band borders.

The purely vegetable soil of the great prairies of Wisconsin and Minnesota yield a tall, rough grass of colored round stalks, which grew for years in its beauty, undisturbed, and unrecognized for any use, until quite recently. This wonderful grass—one of the world's most bountiful harvests—is manufactured into a floor covering which serves its purpose in many homes throughout the world. Since this unique material, made of prairie grass, was placed on the market, a few years ago, it has proven a most practical covering by reason of its durability, cleanliness, economy and artistic properties. Being very closely and solidly woven, it lies compactly on the floor without curling. It is a floor covering for everybody, adapting itself to all surroundings, and can be used the year round in the modest parlor, library, dining-room, bedroom and hall; for summer use it is a correct floor covering for cottages of all kinds and also for verandas.

There are no mattings made in the United States to-day, probably due to the fact that labor in China and Japan is so cheap that American manufacturers cannot compete. The average pay of a Chinese laborer is three cents a day. China mattings are usually bought by weight, from forty-five to ninety-five pounds per roll. In Japanese mattings a close warp is usually most desirable. The lustre on mattings is applied by hand, and is called "palming." The workmen rub with

their palms all the roughnesses, so that the wearing surface is much improved. In matting rugs the best designs are woven in. Others, however, are well stenciled on, and there is no appreciable difference in price.

The uses of linoleum in the furnishing of the home have been steadily increasing during the past decade. The time has long since gone by when the housekeeper thinks of linoleum only when she considers the kitchen—for now dining-rooms, pantries, bathrooms, nurseries and halls, not to mention living and bedrooms and libraries, where inlaid, plain and printed linoleum and cork carpet have been in successful wear for years, testify to the worth of the material.

The kitchen and bathroom still remain, however, the leading rooms for linoleum use, for here is found not only the requirement for bright and cheerful surroundings, but the absolute necessity for cleanliness and sanitary conditions. To have the floor covered with few or no seams for the lodgement of dirt and disease germs is a thing “devoutly to be wished”—not only from the standpoint of health, but from economy of labor in keeping the floor presentable in appearance. No matter how well a floor is laid—hard wood or soft wood, in time the spaces between the boards will open and give a lodgement for dust and dirt.

Ability to withstand hard and continuous wear is the most important linoleum quality. Nothing else, except possibly your shoes, gets as hard, constant, grinding wear as the floor under your feet. Linoleum when down *is* the floor and therefore you can only afford the best. To secure the best results from linoleum, do not tack it to the floor, but use cement which comes especially for this purpose. This makes a very much more useful and attractive floor, keeps water from getting under the covering, and vastly increases the wearing quality of the linoleum itself. The proper way to apply linoleum is first to put on a good layer of cement about twelve inches wide around each edge; then to press the linoleum firmly to the floor and put weights on to hold it in place until the seams are thoroughly tight.

With the modern method of laying linoleum with cement there need be really no seams in the largest room, while the pleasant and restful feeling of walking upon material that has elasticity is the most appreciated by those whose steps in the interest of the family are the most—the Housekeepers.

As has been proved by actual demonstration, linoleum will outwear wood—thickness for thickness and both subject to the same tests. It is also found that the pliability, softness, or what might be called the “non-resistance” of linoleum is the quality that counts for most, and in two things is this quality found. One is oxidized linseed oil—or oil mixed with air, and the other cork.

The purchaser should, therefore, be careful in selecting the goods that are soft and pliable, and at the same time having a firm backing of especially woven canvas to insure proper laying. The subject of patterns is, of course, one of personal taste to harmonize with furnishings and conditions of light.

When linoleum is thoroughly seasoned it is almost indestructible; but when first laid it is necessary to put rubber tips on chair legs, and some protection under heavy furniture.

One great advantage in linoleum is that in cleaning all that is necessary is pure soap and water. A moderate amount of water only should be used, for if water gets under the edge it will have a tendency to rot the burlap backing and eventually spoil the flooring. A little care and attention when it is first laid will repay the purchaser many times in improved appearance, wearing quality and comfort. It is not intended that linoleum shall take the place of brick or stone; it is intended to provide a comfortable, artistic and sanitary floor covering, at a reasonable cost.

In addition to the various carpet-like designs, and the simpler designs which savor of wall-paper effects, there are the modern inlaid patterns which duplicate of fine designs and color variations of inlaid wood floors.



Kitchen showing linoleum manufactured by Thomas Potter, Sons & Company, Inc., New York and Philadelphia.



An American reproduction of an Antique Kashan Rug manufactured by M. J. Whittall, Worcester, Mass.



A good example of a rare Gorevan Rug reproduced in Whittall's Anglo-Persian. M. J. Whittall, Worcester, Mass.



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AN ALABASTINED INTERIOR



Curtains and Draperies

How to Arrange Them. What to Use.

By HALBERT WHITE

Illustrated by Leading Manufacturers



EACH house is a law unto itself. The furnishing of each home presents problems all its own; yet there are general laws—formulated by reason—that help to solve the most difficult problems, whether they relate to curtains and hangings, or to any other subject.

The modern American home is a rational home. It is designed to be used, every inch of it. The space formerly occupied by the parlor is now added to the living room, and useless nooks and crannies are eliminated in favor of sensible proportions.

In keeping with this spirit of rationalism the cumbersome, dust-catching festoon drapery has been banished, and in the detached house the lace curtain and over-hanging that once swept the floor have disappeared in favor of simpler forms—the sill length hangings of to-day.

Of course there are modern houses, adaptations of some recognized period types, in which, owing to the architecture, it would be a crime to use the sill length hanging. But this class of architecture is in the minority.

Most of the houses of English or Colonial architecture, bungalows, cottages, houses built to *live* in, lend themselves admirably to the sill length treatment. It is of this great majority of American detached houses that this article treats.

Assuming that your architect has provided spacious, dignified rooms with windows and doors of good proportions and wood trim of suitable design, the hangings should do nothing to mar the sense of symmetry. Assume also that the woods for the trim have been judiciously selected and that the hard-wood finisher has secured a good result. Incidentally this has been the source of cost to the home builder. If the finish is pleasing, if the lines of the casings are good, why not let them form a frame for the hangings?

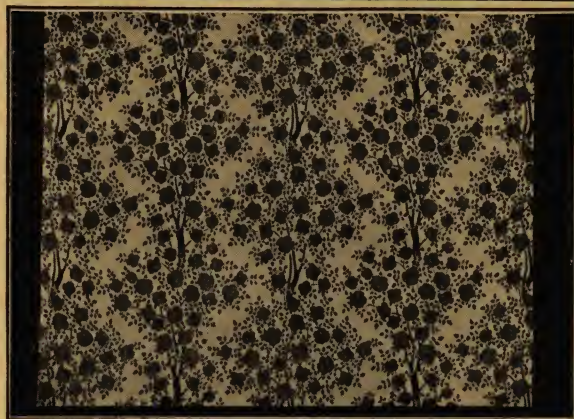
Undoubtedly the cold, hard lines of wood and glass need as a relief the softening influence of appropriate draperies, but in hanging them let the lines of the casings remain exposed where possible.

The keynote for the hangings should be simplicity and suitability with enough of richness to bring them in keeping with the rest of the furnishings and decorations.

There are quantities of quaint old-fashioned English chintzes and reproductions of delightful cretonnes of Colonial days for bedroom use. For the second

floor sitting-room there is a wealth of hand-blocked linens and taffetas from which to select. These hand-blocked materials—prints of the edition *de luxe* character—are also made in various effects especially for use in classic drawing-rooms, pleasant living-rooms, spacious halls, or dignified dining-rooms. In breakfast-rooms they are almost indispensable, and for porch furnishings and cushions they stand alone.

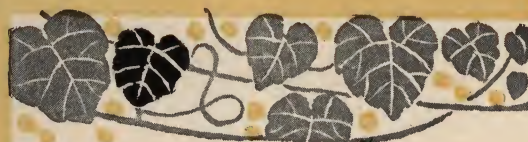
While some rooms require figured hangings, others require plain, and for such uses you will find many soft silks, reps, poplins, shikiis, arras, krinkle tapestries and other



An American reprint of a fine old English hand-block fabric by Elms & Sellon, New York.



Treatment for second-floor living-room, using the cretonne shown in the cut below.



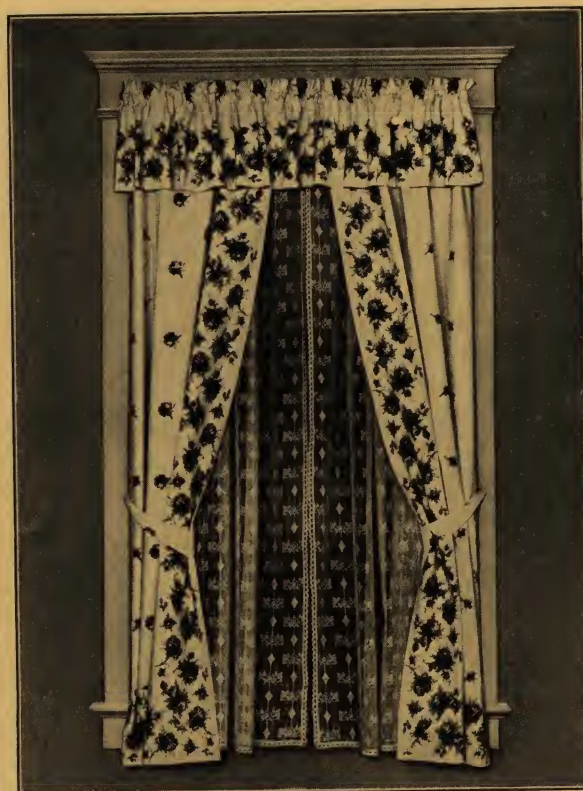
effective stuffs. But where plainness is wanted with richness—rich soft color with lustrous high lights and deep shadows—there is nothing to compare with pile fabrics. There are velvets of every conceivable kind, appearance and color. Velvets of cotton, of linen, of silk, of mohair; velvets with luster, velvets without; velvets plain, velvets jaspé; velvets with pin stripes, velvets with brocaded stripes, and stately velvets with designs dating back to the Vatican, or to the palaces of Venice and Florence; velvets that look fresh from the loom, velvets that look hundreds of years old.

The museums of Europe have been searched for their noblest fabrics; and reproductions of the most notable examples of velvets, tapestries, damasks, and brocades

of all of the recognized periods are readily procurable.

In the selection of fabrics apply the laws of reason. Select rich quiet materials for dignified rooms, less pretentious materials for less pretentious rooms. Let your morning-room be bright and cheery with a riot of color in its chintz hangings, if your temperament so dictates. Your living-room, where you spend most of your waking hours, should be subdued and quiet, but never gloomy. The library should have nothing to distract the eye.

Are you fond of figured materials? Use them more freely in the rooms in which you spend the least time. Your breakfast-room will take figured materials, so will your wainscoted dining-room, albeit patterns and materials should be more formal in character. A large hall with much wainscot carries well a rich, subdued design.



Modern American cretonne by Elms & Sellon, New York, showing bedroom treatment.



Colonial bedroom treatment. Overhanging by Elms & Sellon, printed from an old English chintz.



First-floor treatment without valance. Over-curtains plain Aurora cloth by Moss Rose Mfg. Co., Philadelphia. Scrim curtains by Mills & Gibb, New York.

You may with safety use plain hangings with plain walls to produce a quiet, restful room. Avoid figured hangings with figured walls, although a suitable figure looks well with a striped paper. In general terms it is safe to use figured hangings with plain walls, or plain hangings with figured walls, as one acts as a foil to the other and thereby frequently adds interest to the room.

Having reasoned out the various rooms in the house, rooms of a kind you will want to live with day after day, rooms that are quiet and restful, and other rooms, although fewer of them, that are full of the joy of living, select your materials in keeping with the purposes of the rooms.

Straight hangings are in vogue; they are good style, and happily they are the fashion. Portieres—made of any material that is correct for the room they face, and lined with any material that is correct to face the adjacent room—hang straight, just to escape the floor, frankly suspended inside of the casing and on sockets by poles that match the finish of the lighting fixtures and the hardware of the room. Care should be taken to assure that the colors of one room harmonize with and lead naturally to the colors of the adjacent room or rooms.

It is well that there should be a variety of fabrics in the various rooms, using distinctive, but harmonizing fabrics and colors in each room, having all the portieres in any one room exactly alike, but different from those in any other room. One pair of portieres is sufficient in each opening, that is, a pair made of different materials on each face, but where there are sliding doors that are used to close one room off from another, one pair to such a door is obviously insufficient. When the door is closed one room has hangings, the other none. So two pairs should hang here, lining both pairs, as



This shows the method of hanging portieres. Portieres by Moss Rose Mfg. Co., Philadelphia, in a fabric known as Mersil.

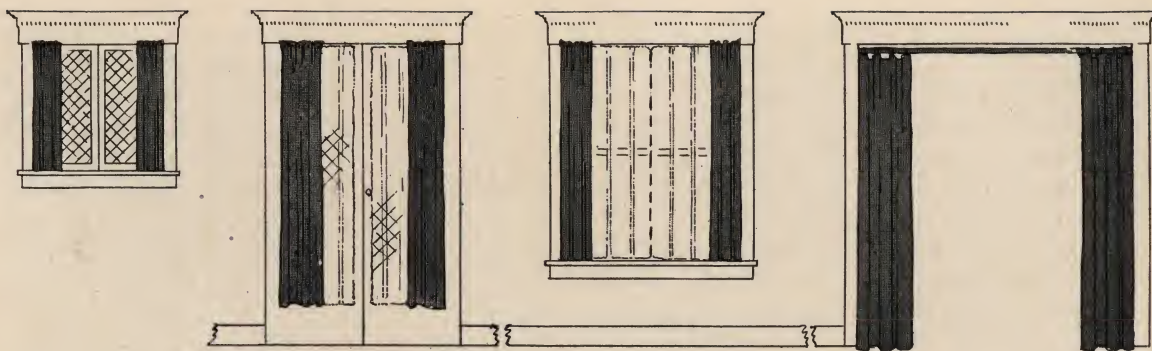




A first-floor window treatment, showing Moss Rose Mfg. Co.'s Aurora cloth with scrim curtains by Mills & Gibb.

they hang back to back, with the less expensive linings made for that purpose. This arrangement acts as a connecting color note between rooms.

You are indeed of the elect if your architect has provided wide, simple open-



With casements and French doors predominating in a room the window needs no valance.

ings throughout the house and has wisely forborne the use of columns, pedestals and similar features. Grille work between rooms is unthinkable, yet consider the hundreds of square miles of grille work that have disfigured American homes in the past twenty years. It is without dignity, without purpose, without excuse.

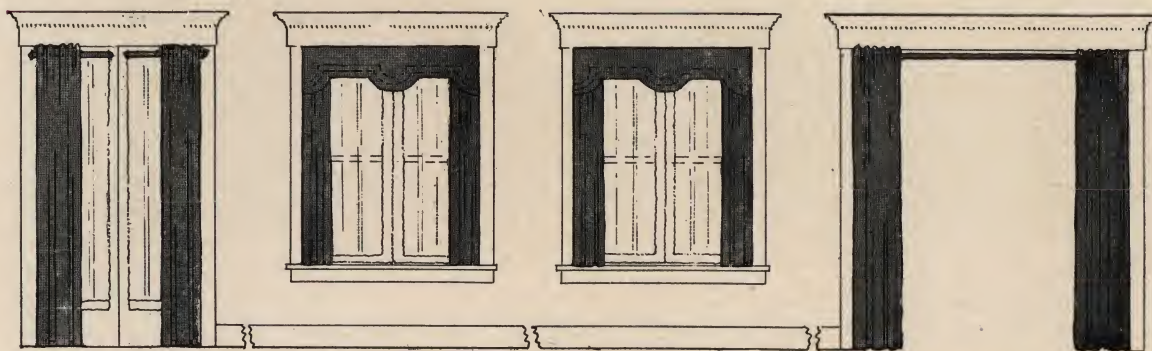
Valances, especially at the windows, frequently have a logical place in the well-planned drapery scheme. Where the windows occur singly valances at times are advisable, but not necessary. But where the windows occur in groups of two, three, or four in a group, they make a most effective and logical way of connecting the over-curtains.

The possibilities of the valance run the whole gamut from that which is simple and plain to the highly ornate and complex creations of the French period styles. The substantial American home has little in common with the latter, for we lead different lives and have different ideas and ideals, and so for the homes of which this book treats the simpler types are in keeping.

There is little dissimilarity in the methods of hanging portieres, but owing to the many types and sizes of windows in one room there is a wide range of method necessary in hanging window valances and over-curtains.

If the house is built of brick or stone the jambs are usually of sufficient depth to permit all of the curtains to be hung inside of the casing and fall to the sill; if of frame construction, as are many of the Colonial type, there is rarely sufficient depth to hold all of the hangings inside, and perforce some of them must hang on the outside of the casing. But even then, if space permits, the lace curtains should hang inside, supported by a rod attached to the top, the curtain stopping at the sill. In either case, unless a member has been especially provided on which to hang the window shades, the shades are hung in the run above the pulley that holds the cord operating the lower sash.

Where brick or stone construction is used, the lace or scrim curtain is suspended on a three-eighths inch rod hung inside the casing with sockets. Parallel to it and in front is the rod for the over-curtain, and if separate valances are used,



With windows predominating valances may be used even though the portieres and French doors have none.

a third rod for the valance, still keeping inside of the casing. With frame construction the over-curtains of necessity hanging on the outside should cover as little of the casing as possible. But where should the over-curtain stop? If as it falls the window sill extends far enough to receive it, let it stop at the sill, that is its natural resting place. If the sill does not project far enough to receive it, the over-curtain must continue until it reaches the bottom of the apron where it appears to come to rest.

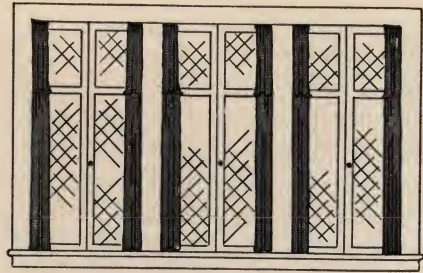
Should the material of the over-curtain and the valance differ from that of the portiere in the same room; that is, can they differ in texture and yet harmonize?

That depends. If the room is large and somewhat formal in character, it is well to have all of the hangings exactly alike and of rich and heavy material. If the room is not so large nor so formal the portieres may remain rich and heavy and the over-curtains may be of some of the light-weight, sun-resisting materials, made to hang without lining. Many of these fabrics light up with a beautiful, soft glow when hung against the window, and admit more light to the room than do heavier materials. For small rooms it is frequently advisable to use these light-weight stuffs, both for the windows and the portieres, having them all of the same. There are rooms in which it is advisable to have the portieres and the valances of the same heavy material and the over-curtains of a lighter weight stuff, like soft silk. When prints are used, especially in bedrooms, all of the hangings should be of the same.

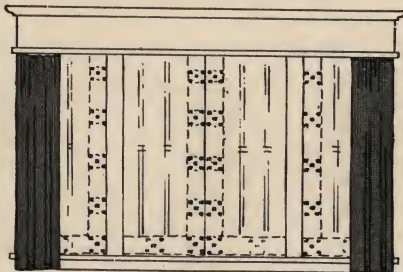
The lace curtain, using the word in a generic sense to include curtains of net, curtains of scrim, or curtains of muslin, whether trimmed with lace or not, or whether made as curtains or as panels, should be chosen with the same care as are the materials for the hangings.

In the selection of curtains a proper sense of proportion should be observed. When curtains are hung to the floor on windows of good width and proportionate height a border of considerable width can be used to advantage. But greater discrimination is required when curtains hang to the sill. A sample curtain may look well when considered as a curtain alone, with no thought of its ultimate surroundings, and not look well when hung in place as part of a pair, if the proportion of the design is not suitable. The test comes when all of the window curtains and draperies are viewed as a whole. There should then be a correct sense of relation and balance of the various parts.

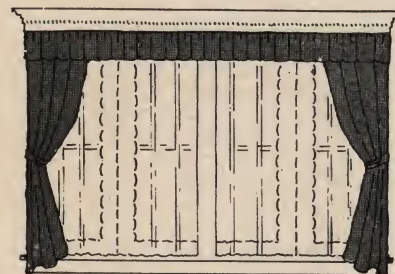
If the curtain selected has a border, then the factors to be considered are the



English casement curtains.



When overhangings connect a group of two or three windows it is usually impossible to hang them other than on the outside of the casing.



A group of two bedroom windows, with cretonne overhangings hung on outside of casing showing valance connecting over-curtains.

two borders touching each other in the center of the window, the field or body of the curtain, and the over-drapery. It is obvious that if the border is so wide that it extends to the over-curtain, none of the field of the curtain can be seen; the border claims all of the attention and overbalances the whole picture. Therefore keep down the width of the border. Let the two borders together fill the smaller part of the available space when the curtains are hung. When the over-curtain is in place let as much of the field of the curtain show as of the border, even more, if possible. It is only when you have attained a pleasing percentage of border, of field and of over-curtain that the eye is satisfied. The great danger lies in getting the border too wide.

The varied architecture of to-day presents many complications from the curtain standpoint. Apply the rule of reason, and if you can discover why you do this, why you do not do that, the problems are almost solved. The simplest form to reason out is (a) the room containing two, three, or four windows all of the same size with an opening of appropriate size leading to the adjoining room.

A slight complication ensues (b) when two of the windows are of the same size and a third wider than the others. An additional perplexity is added (c) when two of the windows are of the same size and two or three more are grouped together in one frame. Complications increase by gradual steps until we



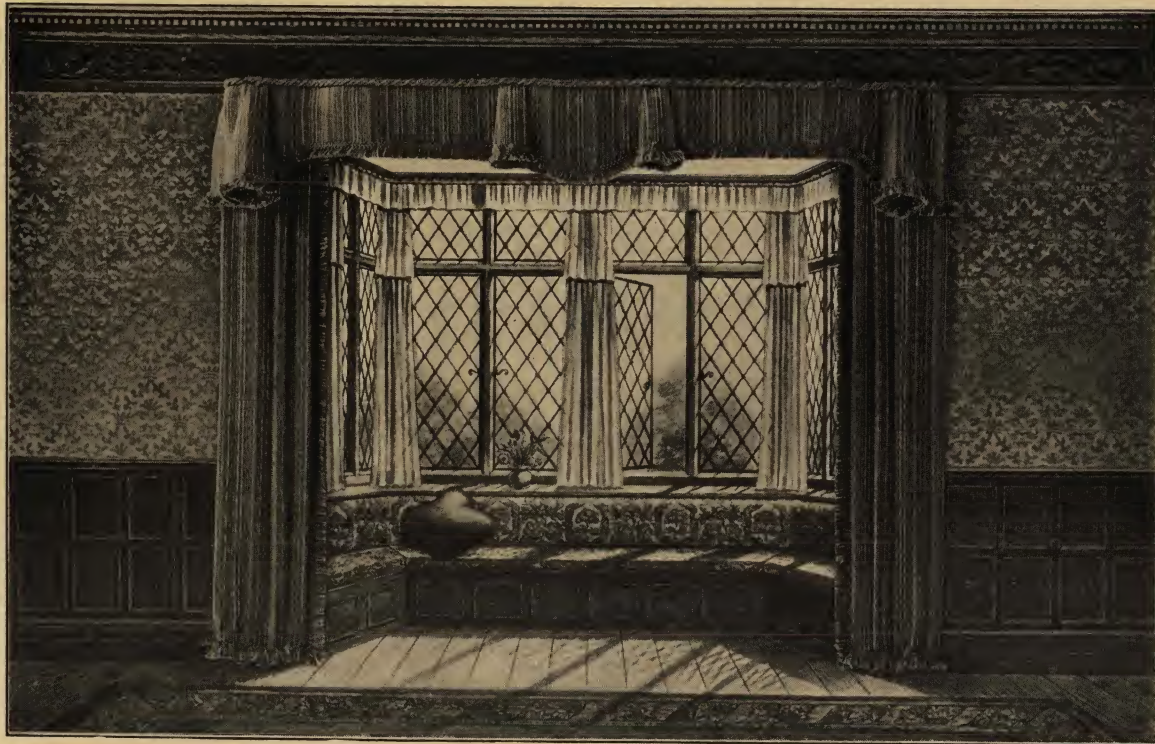
A simple English room illustrating the use of printed linens.

reach (d) the occasional well designed and dignified room having a combination of good windows, French doors leading to the open, and casement windows opening above the bookcases, or at the sides of the mantel.

Let us hope that fortune has delivered you from the near-architect who creates frivolous, meaningless conditions, for he has devised some atrocities which no curtain can correct, no hanging hide.

Taking the simpler problem, "a": You need only so many pairs of curtains. They can be of net or of scrim with a border, or of an all-over pattern of filet or Colonial net with an edging. Or they can be of muslin for a bedroom, for summer use, or for a cottage. A pair of over-curtains to each window completes the hangings. If the window is wide, hang them straight without catching back. A valance across the top frequently adds to the charm. When valances are used, if the windows are comparatively narrow catch the over-curtain back with bands of the same material, but if the window is wide enough it is better to let the over-curtain hang straight.

The problem "d" will not admit of so easy a solution. The room contains three types of openings in addition to the entrance. Let us assume that there are two pairs of casement windows opening out, two pairs of French doors opening in and two broad windows. The height of the casements is three feet, of the glass in the French doors six feet six inches, and of the windows five feet six inches.



A typical English casement treatment.

Owing to the many sizes six pairs of bordered curtains will not do. Owing also to the preponderance of casements and French doors it is easier to abandon borders altogether. An effective method of treatment consists of using an all-over pattern of net trimmed with a simple edging. As the casements open out the curtains should not be attached to the casement, but to the casing with rods at the top only. As the French doors open in, the net should be attached with rods top and bottom, to prevent the curtains blowing about when the doors are open. The windows should have a pair of curtains to each.

Another treatment for French doors, more formal in appearance and more expensive, consists in making special flat lace panels of various descriptions just to fit each door. Many of these panels are made of filet or other lace squares, combined with embroidered linen squares and hemstitched scrims. The window curtains are made to match the door panels and to hang either as panels, one to a window, or as curtains with the borders designed to conform to the door treatment. The preponderance of any type of opening should be the deciding factor in arranging the hangings. For instance, in the above room the openings for casements and French doors number four, the windows number two. It is not advisable to use valances over casements, as they are not large enough to carry them. Only with exceptional architecture is it possible to use valances above the French doors. Here then we have four openings without valances, and that fact is good reason for not using them on the other two.

The windows in this room should each have a pair of straight over-curtains, the casements, if size and light permit, should each have a pair, and the French doors should have a pair to each pair of doors. Those on the French door are usually attached to the top of the door by a rod, hanging loose at the bottom, or confined, as preferred.

Where the architecture and furnishings are more imposing, and especially where velvets are used, the over-curtains at the French doors are supported by swinging cranes attached to the casing, arranged so as to automatically open and close with the door. They hang to just escape the floor and appear much the same as the portieres.

Where windows predominate in the room valances can be used effectively. Suppose a room with four good windows and one pair of French doors: Assume that these windows will look well with valances. Use them unhesitatingly. The fact that the French doors carry none is unimportant.

As the number of English houses increases in America, the use of the delightful English casement curtain must also increase. Hung in a perfectly frank and simple way, made plainly for a purpose and serving that purpose perfectly, they challenge our admiration.

This, after all, is the test of good hangings—that they serve a purpose and serve it well; that there be no false note of proportion, of color, of harmony; and that they make the home a more delightful place than it otherwise would have been.



Furniture

Illustrated by Leading Manufacturers



COME now to a consideration of one of the most interesting adjuncts of the successful home—the Furniture. Fortunately, of late there appears a recrudescence of that spirit of our forefathers which invested the selection of the household goods with a due regard for the solemnity of the occasion and a full appreciation of the important results to be derived therefrom. We now believe that similar worthy selection will likewise yield not only comfort and utility, but also that other part which is to be desired above great riches—an ample and well-chosen collection of family heirlooms.

The highest tribute that can be paid to the sterling worth and consummate skill of the old-time cabinet-maker is to say that every first-class manufacturer in this country and in Europe is to-day busily engaged in reproducing the best-known designs of these old-time masters. And the names of Sheraton, Heppelwhite, Chippendale and Adam are more familiar to the people of our own day than they were to the people of the time in which they lived.

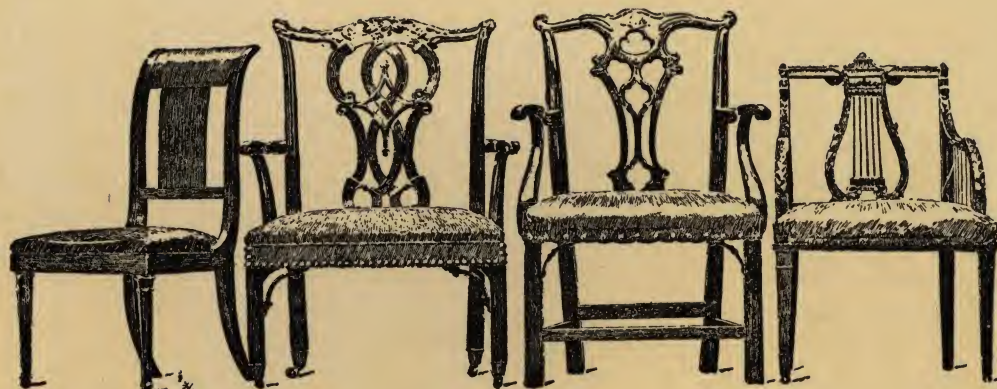
These men were artists in the truest and best sense of the word. Most of their work was produced in response to special commissions—sometimes by royal warrant, again at the behest of the nobility or other exalted personages, to whom the question of cost mattered nothing.

Under such circumstances it was only natural that men of undoubted genius should be entrusted with such commissions, and they worked just as Rubens or Michael Angelo did.

The Adam Brothers, Robert and James, were, strictly speaking, architects and not cabinet-makers and worked with great success in restorations in London. But in their interior work, they combined the designing of sofas, chairs, tables, sideboards, etc., with their more serious work of decorating and remodelling. Many of the historic homes of England—notably Lansdowne House—contain specimens of their work.

Adam furniture is very rich and costly. It is formal and rather ornate. In the olden days color played no small part in the plans of the designer.

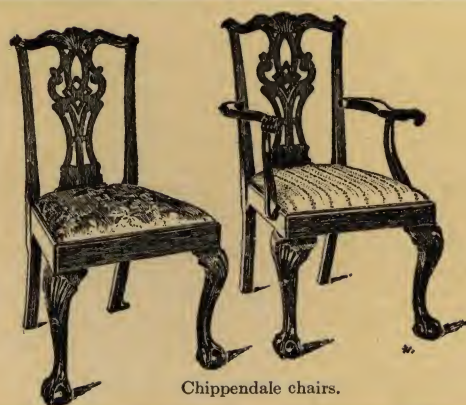
A. Heppelwhite & Company were a firm of cabinet-makers in London who likewise builded better than they knew. Their work claimed attention for its graceful and natural lines, succeeding the heavier and more formal Dutch influence which up to that time had pervaded England. Thomas Chippendale and Thomas Sheraton, the remaining names in this famous quartette, were also cabinet-makers and gained some local distinction in their own day for the work which was afterwards



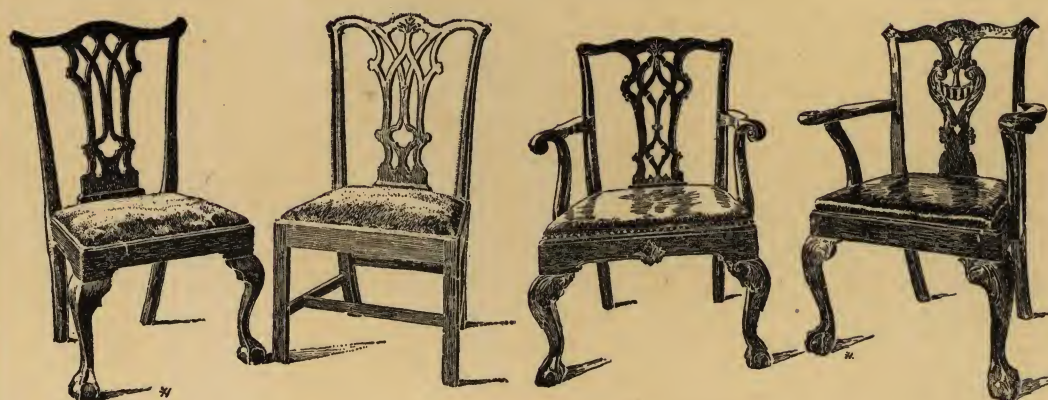
A Sheraton chair.

Two Chippendale chairs.

A Sheraton chair.



Chippendale chairs.



A group of Chippendale chairs.

The distinguishing characteristic of Chippendale chairs is the "ribbon" back with claw feet. The "ladder" back and straight leg are also used. Sheraton designs are lighter if anything simple, straight lines in back and legs being the main motif. Heppelwhite are easily recognized by the heart shape which invariably appears in the back of the chair. Adam is much heavier and more formal. See illustrations above and on succeeding pages.

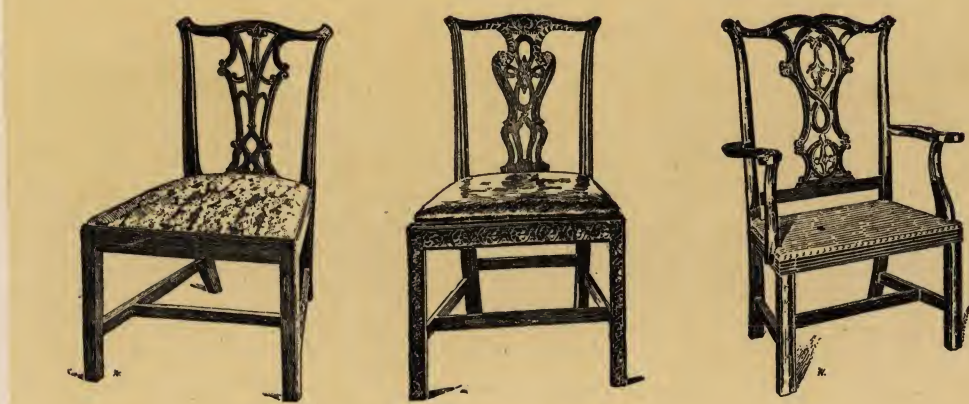


Chippendale.

Sheraton.

Chippendale.

Sheraton.



Chippendale chairs.

to become famous. Chippendale made a particular style of light and elegant drawing-room furniture characterized by ornate carving and gilding. Almost all mahogany furniture made at that time (1750) was popularly called Chippendale, as we now apply "Colonial" to all furniture of our forefathers.

All four of these designers flourished in the eighteenth century, but there is no evidence that they themselves, or the public who patronized them, had any idea that their work was of such superlative character as to be handed down to future generations as the highest achievement in furniture designing and construction, or to be the standard for all future comparisons.

While but little of their handicraft was available to the general public of their day, still many of their more elaborate pieces were modified and duplicated for general consumption. Sheraton himself published a series of drawings meant for the instruction of the craft in general, and in it he made several sketches showing how his more elaborate designs could be slightly changed, making them "come much cheaper," as he expressed it; yet, at the same time, retaining the essential structural elements of his original work.

Chippendale, like Sheraton, in his instructions to designers also frequently suggests that his designs can be varied without detriment. A typical suggestion reads—"The ornaments may be omitted if thought superfluous." We have, there-



A Chippendale chair.



A card table by Heppelwhite.



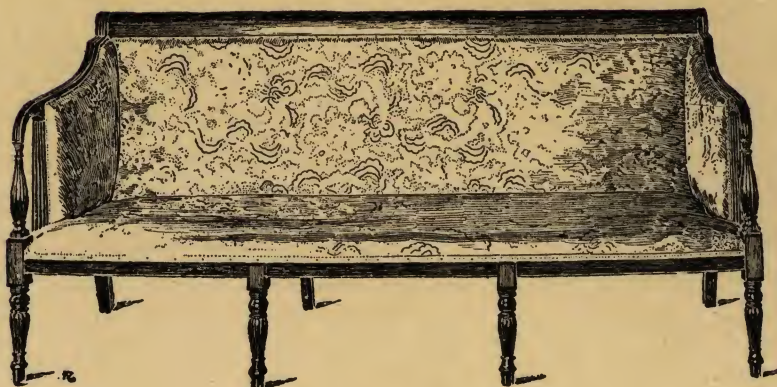
A Chippendale chair.



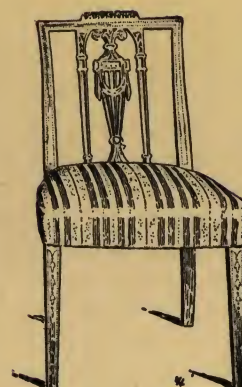
A settee owned by John Hancock. Colonial Period.



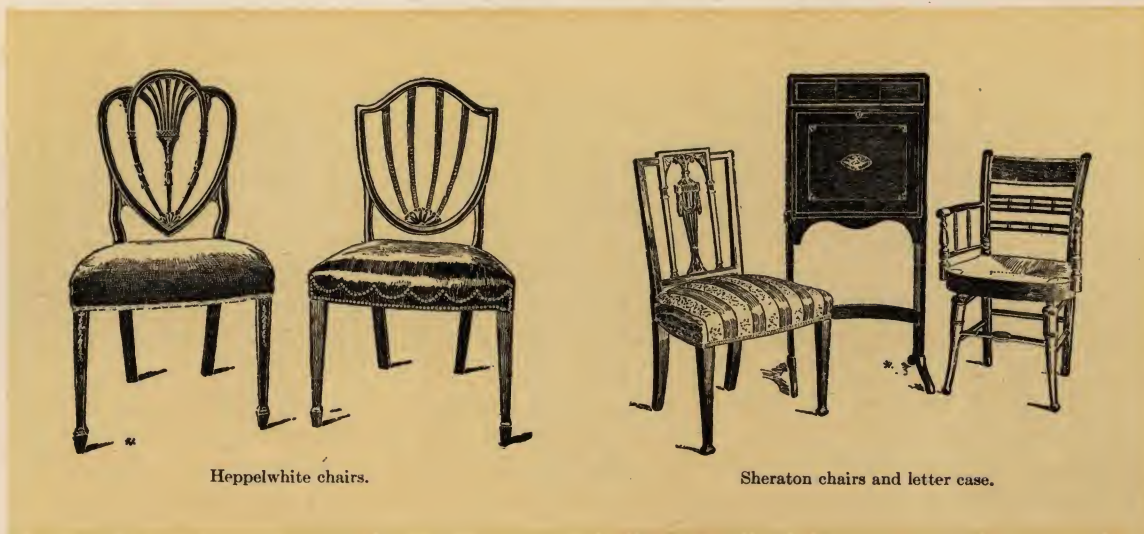
A Chippendale settee.



A Sheraton sofa.



A Sheraton chair.



Heppelwhite chairs.

Sheraton chairs and letter case.

fore, this highest authority—the masters themselves—for modifications and changes in their classical designs.

In addition to the names of the men we have already mentioned, were a goodly number of other far-famed artisans, whose work lent distinction to the periods and to the countries which were the scene of their labors. France, under the different Louis; Holland, in the early sixteenth century; England, under Elizabeth, William and Mary and the Georges and Spain under the Moorish influence—all made notable contributions to the then newly awakened decorative period.

It is not our purpose to enter upon a lengthy consideration of the various Periods, except in so far as it will enlighten the reader as to the origin and *raison d'être* of styles in furniture. In his wanderings among the various marts of our country he will continually encounter reference to "Period" styles, and will be puzzled at times by numerous observations on Early English, Jacobean, Tudor, Flemish, Dutch, Elizabethan, Georgian, Louis XVI, Colonial—and by references to Sheraton, Chippendale, Heppelwhite and Adam.

In the following pages, therefore, we have grouped together examples of the various schools or Periods of which we have just spoken. Not only have we given an example of a Sheraton chair, for instance, as Sheraton himself made it, but we have shown also various reproductions of chairs from the same model made to-day, each one expressing the manufacturer's own conception of what he considered a good reproduction. Some of these reproductions are "pure," that is, absolutely correct in every single detail. Naturally they are very expensive. Others show modifications of the "true" model (after Sheraton's own suggestion) so as to "make them cheaper." None of these modifications depart radically from the original, but be that as it may, our pictures show just how much the departure has been, and the reader is left sole arbitrator as to the merit or demerit of the change.

Slavish adherence to an absolute reproduction of these classic designs is not therefore necessary. Many of these changes are in harmony with the different conditions of life existing to-day and are in keeping with them.

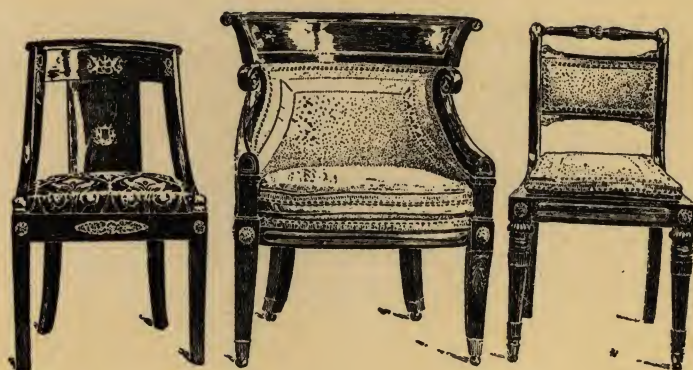
It is also fair to say that there are many original pieces made to-day that will in years hence rank as classics. These are found in every first-class shop, but their artistic excellence and structural merit naturally do not at present receive that recognition which only time can give. While a due regard for the work of the old masters is commendable, at the same time it is not wise to shut our eyes to the actualities of the present.

These remarks are applicable particularly where a specific Period Room is contemplated. The Georgian period, for instance, was co-existent with all the great artisans mentioned above and the arrangement of a Georgian Room does not, therefore, exclude all but one particular style. A judicious selection of what will harmonize with the average life of the occupants is as good a rule as any.

The seeker after the genuine "antique" must also be constantly on guard. In nine cases out of ten, buyers can rarely be positive of the genuineness of their acquisitions. It is a lamentable fact, but nevertheless true, that the manufacture of "antiques" is a flourishing industry both in this country and abroad. With the possible exception of a few recognized and indubitably genuine articles—the personal handiwork of the old masters—there is no antique which can be safely purchased except through a dealer of established probity and reputation.

Families wherein the furniture has descended from generation to generation are all too rare, and it is with a desire to promote the purchase of furniture of this character that our remarks are intended. Nothing can do so much for a family as the possession of well made, correctly designed furniture and its influence, in an ethical sense, is much greater than is at first considered possible.

In this connection it is a pleasure to state that in our own country there is made some of the finest Period furniture obtainable in the world, and of such proved excellence as to enable us to enjoy a most excellent outlet among Old World cities famed for their critical judgment, as well as among our own people whose wealth and culture enable them to pick and choose wherever the best can be had, regardless of cost.



Adam chairs owned by the Duke of Devonshire.



Some Dutch chairs of the Colonial Period owned by Miss Van Vechten, Albany.

Heppelwhite chair.



Furniture of Modern Design and Moderate Cost

Illustrated by Leading Manufacturers



THE purchase of new furniture is always a pleasant task, but to accomplish it satisfactorily it behooves one to make a study not only of prevailing styles, but of the goods of the most reliable manufacturers. Better only one well-made chair than three badly constructed. Better to pay a price for a good make of furniture, which means good wear as well as good form, than to economize so closely that flimsy furnishing is the result.

The reproductions of elaborate furniture of the early Italian and French days, that have been used in our formal houses, are fast disappearing; and the informal styles, used from the time of William and Mary of England to the end of the Seventeenth Century, are now in vogue.

The Colonial is here to stay, and the old furniture of our great-grandfathers' days is carefully duplicated for those of us who have inherited no ancestral pieces.

Masterful polishing, which brings out the exquisite markings, enhances the beauty of the woods used by manufacturers of to-day. Circassian walnut is a most beautiful wood, though perhaps not susceptible of as high a polish as is mahogany. Mahogany is in great demand because of the revival of Period furniture. The light Georgian pieces and the heavy Colonial, which are copied to-day, were of mahogany. Satin-wood was much used in English designs at the end of the eighteenth century, also white mahogany. These two woods are more expensive than mahogany, and are now used in copies of old English and French designs, the white mahogany especially being decorated with dainty hand-painting. To-day walnut is used extensively in dining-room and library furniture. Mahogany for the bedroom is still most popular, and much of the oak is colored extremely dark to match the old English oak of Elizabethan days.

Birdseye maple and curly birch come from Canada, and cost about the same as mahogany. Their light color makes them favorites for bedroom sets, and the majority of these are in the styles of Louis XV and XVI. To-day there is little really new in shape; we have gone back to the old English and Colonial times; the quaint grace and comfort of the old pieces, and the artistic artisanship, make us glad that workmen of this day so closely carry out the designs which in old furniture are now almost priceless.

The decline of the vogue of elaborate Italian and French styles is very easily traceable to the popularity of the old English country house idea. If there is a



Hand-made Georgian Living-Room Suite, in solid St. Jago mahogany. The Tobey Furniture Company, New York and Chicago.



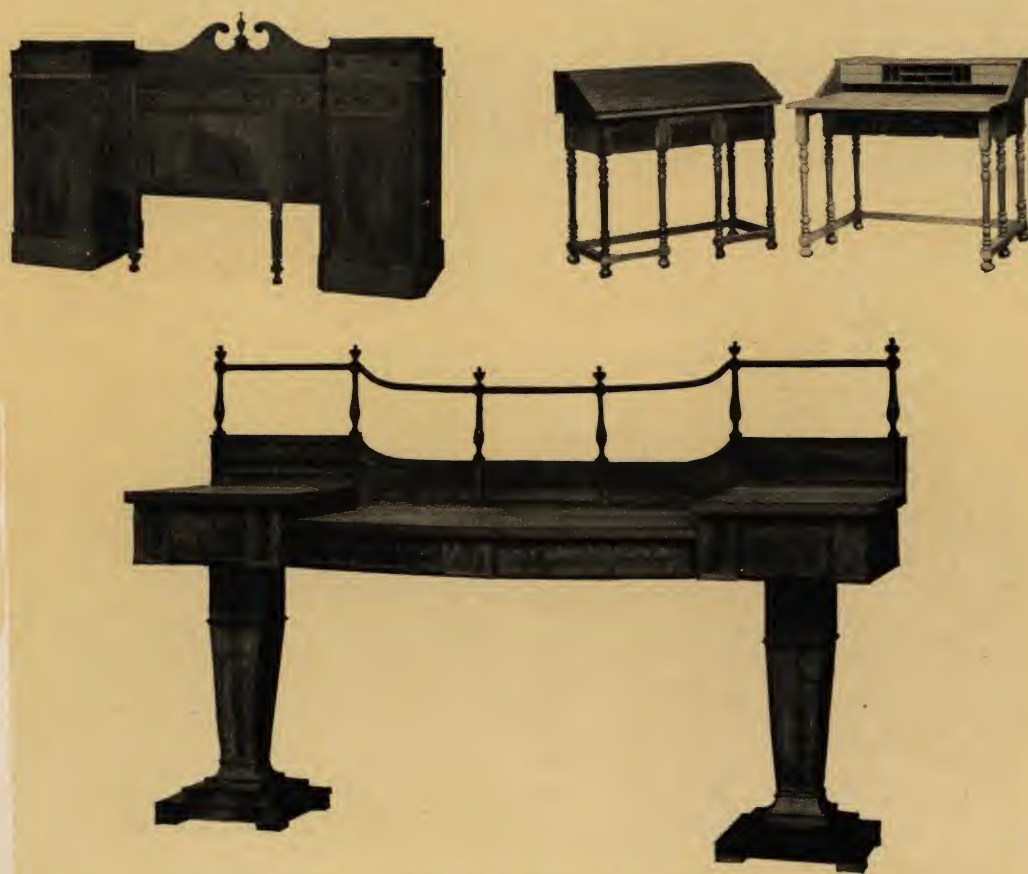
Hand-made reproduction of an old Virginian Colonial Sideboard, in solid St. Jago mahogany. The Tobey Furniture Company.

Hand-made Georgian Desk, in solid St. Jago mahogany. The Tobey Furniture Company.

formal room there is a place for formal furniture. American living-rooms lend themselves to the comfortable stuffed furniture of the Elizabethan, Queen Anne and Jacobean Periods, relieved by the lighter styles made after the manner of the eighteenth century makers, Chippendale, Adam, Heppelwhite and Sheraton, the French of Louis XV and Louis XVI, and the Mission style. Old English furniture is beautiful and very varied in design. The copies are legion and often so exact as to puzzle even a collector. It is very difficult nowadays to secure an entire set of antique furniture; and the best decorators are often forced to have old pieces made to "piece out" special orders of genuine antiques. Only the collector knows the difference—the average lover of old furniture is as much entranced with the new piece as with the old.

Period furniture, which has recently been delighting the manufacturers, has served to confuse some dealers and many purchasers who are not altogether familiar with the old styles after which the styles of to-day are so closely patterned. Everyone knows the heavy Colonial furniture of the days of our grandfathers, the beautiful mahogany pieces, many originals being quite beyond the purse of any but a collector. These are now reproduced so exactly that many people prefer them in their newness to the much used old pieces. The revival of the patterns of furniture of the seventeenth and eighteenth centuries has given a new impetus to the designing of furniture, and in certain sections of the country.

To faithfully follow the furnishings of a certain period requires the study of the old furniture itself, and every manufacturer is supplied with accurate information from historic records of the woods and shapes used by the old furniture makers.



Colonial Furniture, made by A. D. Cowan & Co., Chicago, Ill.

In the living-room everything centres about a settle or couch. If the settle selected be a copy of the Jacobean Period, it will have an elaborate carved frame with Renaissance tapestry covered cushions. Old English oak panelling, with highly carved mantels and pilasters, is suitable with this furnishing. Old tapestries are almost altogether replaced by the modern very clever and durable imitations.

A Colonial davenport, generously stuffed and leather-covered, forms a good foundation for the living-room or library. A low, luxurious, deep-cushioned arm-chair, with small low-seated arm-chairs form the acme of luxury.

The winged chair, that quaint old high-backed Colonial friend with a deep wide seat, is now made with five-inch thick cushions, often with an air cushion in the center.



Tudor Chair, 1600 A.D. (settee also), original in Gwydyr Castle, Wales. Formerly said to be in Old Whitehall Palace.



Modernization of a Franciscan Mission Chair in Mahogany. Settee and other pieces also made. Adapted from furniture made in 1525 A.D. by Franciscan Monks in Mexico and Central America.



Jacobean Twin Hall Chair, owned by Princess Beatrice of Battenberg, mother of the Queen of Spain. Osborne House, Isle of Wight.



Reproduced from the original suite in Longleat Hall. Made in reign of Charles II, 1665 A.D., and said to have been constructed from the oak of Boscobel, in which Charles I hid after the Battle of Worcester. Arm chair and side chair made also.



Period Furniture, made by the Robert Mitchell Co., Cincinnati, O.



Some excellent examples of reproductions of Sheraton, Chippendale, Early English and Colonial chairs at moderate cost by the Michigan Chair Company, Grand Rapids, Mich.

The chaise-lounge is another luxury of the living-room or library, and has one advantage over a settle or davenport in that the parts can form either a lounge, or two arm-chairs, or a large arm-chair and a stool.

Attractive sets of mahogany settle and chairs are made with wooden rim and cane seats and back. Some of these settles have stuffed cushions and valance or short curtain over the back, while the chairs are supplied with thin cushions which may be removed at will, as they are tied on. The lines follow the old Adam and Sheraton designs.

The round table is still the best style for the dining-room and is usually either of plain mahogany, walnut or oak; or elaborately carved according to the period copied. Queen Anne tables are quite simple, with straight legs. The Adam and Chippendale tables show more elaborate work. The ball-foot and the lion's claw are the surest mark of the Chippendale period. These are found in most of the Colonial reproductions. Eighteenth century dining-rooms had table, chairs, and sideboard table only; in the latter part of the century, the pedestal sideboard came in, and these sideboards are now reproduced to perfection. Bedposts, chairs, sideboards, tables, etc., are beautifully inlaid and carved in the Sheraton and Heppelwhite designs.

Chinese Chippendale library and dining-room pieces, with exquisite



Dining-room Chair in Antique Ivory enamel finish from James McCreery & Co., New York.



Sheraton Dining Table in Antique Ivory enamel finish. This recent innovation is shown by James McCreery & Co., New York.

inlay and carvings, are among the most elaborate reproductions. Occasionally we see the much decorated Dutch marquetry pieces finely inlaid.

Dainty bedroom sets are hand-painted or stenciled as well as plain. The designs are of the eighteenth century, and the stained wood is in splendid imitation of the more expensive woods. Oak is the foundation of most of the stained furniture. Exquisite enameled and hand-painted sets are made of birch, a very smooth wood which takes and holds all colors of enamel, and makes a smooth and desirable surface for hand-painting. Flowers form the motif of most of the designs in artistic garlands and wreaths in delicate coloring and arrangement. There are mahogany four-posters, and twin beds—most of them very light in construction. The Colonial styles are, of course, heavy and of mahogany.

Dressing tables, low and broad, with triple mirrors, allow of seeing the back without moving or using a hand-glass. Mirrors are also made entirely separate, intended for hanging on the wall above the bureau or for standing on a table.

Conventional stencil designs in color or in subdued wood tones are also found on the stained furniture. It is also possible to buy the plain enameled pieces and to have the decorating done to order, to match the general scheme of wall covering.

Beds during the early part of the eighteenth century were always four-posters, and a fine variety is now manufactured carrying out the old ideas. The twin four-posters, both plain and with elaborate carvings, are much in demand, with bow canopy and valance.

Rush chair seats in the enameled sets and in the mahogany are very desirable. Large and roomy rockers, hand-painted or stenciled, are in demand for bedrooms.

The Eighteenth Century was so full of furniture suggestions, which have been brought to our Twentieth Century eyes, that the purchase of new furniture is quite



Macey Chippendale Bookcases, made by The Macey Co., Grand Rapids, Mich.



Four-poster Beds, by William Leavens & Co., Boston, Mass.

a task, one desires so often being led astray by the beauty of other designs when a decision is practically already made.

In the Bent Wood furniture there is shown a remarkable variety in design and construction. One is apt to think of this furniture merely as a curving framework with cane seat and back, plain and useful. It is useful, but there is as much variety in the designs of the Bent Wood furniture as in any other kind—more, perhaps, because the bending of the wood makes it possible to secure many unusual curves. Separate chairs of this furniture fit in well with other furnishings, and brighten the effect of the room.

Anyone who knows Mission and Craftsman furniture has no difficulty in perceiving that the principles upon which it is based are honesty and simplicity.

The mission of this work is durability and comfort with extreme simplicity.

This furniture is built for all manner of uses and its construction is so thorough that it will last for the lifetime of the white oak of which it is made, which means the lifetime of several generations of men. Being designed upon the most natural lines and made in the most natural way, there is little room for change in the style, and that the style itself has made good its appeal to the American people is best proven by the fact that, during the twelve years it has been upon the market, it has remained unchanged, except for such modifications and improvements as evidence a healthy growth along normal lines of development. It is impossible to get far away from the structural lines which declare the purpose and use of the piece, and the proportions that best serve that purpose and use are the proportions which it should have.

By the use of a special finish the oak is given three different tones, all of which belong essentially to the wood. One is a light soft brown that is not unlike the hue of the frost-bitten oak leaf; another is the rich nut-brown tone which time gives to very old oak; and the third is a delicate gray that gives to the brown of the woods a silvery sheen such as might be produced by the action of the sun and wind.

Hard leather is used for table tops and for chairs and settle seats where the leather is stretched over the seat rails and nailed on. Soft leather is used for slip seats in chairs and for loose seat cushions in settles, where the size of the cushion requires a large hide. Sheepskin is the softest and most flexible of all our leathers,



Macey Colonial Bookcase, made by The Macey Co.,
Grand Rapids, Mich.

Macey Artercraft Bookcase, made by The Macey Co.,
Grand Rapids, Mich.

and best adapted to covering pillows and loose seat and back cushions for chairs, where the skins can be used without piecing.

The sectional bookcase has come to stay in the household as well as in the office, and can be secured in all woods. No method of storing and protecting books from dust and dampness, as satisfactory as the sectional bookcase, has yet been found.

The well-furnished library, where one may enjoy to the fullest extent companionship with the world's greatest thought, is desirable in every home, no matter how modest it may be. The dignity of



Macey Sheraton Bookcase, made by The Macey Co.,
Grand Rapids, Mich.



Macey Chippendale Bookcase, made by The Macey Co.,
Grand Rapids, Mich.



a library is something which can be secured by no other portion of a house. But whether in a library, or just in a nook where one's favorite books are stored, the sectional bookcase lends itself to every style of decoration and every kind of wood. Being furnished in units, or single shelves which may be added one to another until a large bookcase is secured, of any length or height required, it is possible to start it in as modest a way as is desired, and add to the library as time goes on. The sectional bookcases are made in various styles to suit the most captious critic, from the simple mission and craftsman finish in dull oak and mahogany to the best grade of mahogany, fitted with dust-tight door of French bevel plate glass. An innovation in the straight styles of sectional bookcases is the

sections with mitred ends to fit in a corner; and also what is termed the desk unit, which provides an attractive writing desk, either with two legs or four, which fits between the other units.

The "Cottage furniture," familiar to our mothers and grandmothers, has made great strides toward the artistic, and instead of painted pieces for the bedroom, on which outrageous garlands of flowers are imprinted in gorgeous colorings, there is the simple form of oak furniture, of a modified crafts style, which is dignified, as reasonable in price as the hideous old furniture, and very easy to keep clean, due to the simplicity of its lines. For a small house to be furnished by moderate expenditure, good value and satisfaction can be secured through cottage furniture.

Another innovation in furniture of the last ten years is the "knock-down" pieces, which are shipped to the purchaser in simple finished sections, to be easily put together, and stained as desired.

Willow furniture is a great favorite. For solid comfort, artistic effect and great durability, one should be careful in selecting ready-made pieces to observe the workmanship as well as the material. Every piece of willow furniture is hand-made from the raw material, with no glue and only occasionally a nail.

Besides the bright and attractive appearance of willow, one of its good points is that its color may be changed as often as desired; it may be used in the natural state at the start and may be subjected to heat and cold without damage. It may be even left out in the rain without damage to the wood other than a yellowing of the strands if left continually as a prey to the elements. Even then, after much hard use, when a willow chair in its natural color has come to look sun-burned, it is still as good a foundation for dye, paint or enamel, as when it was new.

Distinctly in a class of its own is the furniture made of prairie grass. The weave is close, forming a protection against draughts, or is in open style, which is considered by some purchasers as more desirable. Attractive easy-chairs in all styles, to be used either with or without cushions, are shown, as well as the smaller chairs, luxurious long settees, cosy tête-à-têtes, spacious rockers, tables and stools in great variety. The prairie grass furniture is carefully made and the fibres well woven together to withstand considerable hard treatment.



A Willow Chair, from the Willowcraft Shop,
Cambridge, Mass.



Wicker Chair, by the Heywood Bros. & Wakefield Co.,
New York.



Some Color Suggestions for Interior Paint Work



GENERALLY speaking, it is safe to say that color tones that make their appeal from their softness, are more to be desired than tones that are more pronounced. At the same time, it is hard to lay down any rule that covers every case.

The furniture, for instance, to a very great extent, should form the keynote. Handcraft furniture with its mellow shades is fortunate in that it will harmonize with practically any combination that may be selected. The character of a room also will suggest the most appropriate blendings.

Libraries have a more scholarly atmosphere when finished in dark tones and in the bedroom, lightness and cheerfulness, as indicated by the tonal values of pink, light blue, light green, etc., are more appropriate and particularly so in the case of children's rooms. In the living rooms, where the furniture is mahogany, greens may be used in much profusion with good results, particularly so if the furniture is of colonial design or any of the standard period styles.

Our illustrations show such a wide variety of choice that they cannot help but be of great assistance in selecting the proper combinations and, as they are all taken from actual living houses whose occupants have had time to test the effect of their selections, it is quite certain that, if any or all of them should be adopted, they will produce the same satisfactory results elsewhere.

The use of paint as a decorative medium is rapidly increasing and has much to commend its use. From a sanitary point of view, it would be hard to find anything to equal it; and now that a proper appreciation of its possibilities is more generally understood, its use will continue to increase. There is such an infinite variety of combinations that no room in the house exists that cannot be greatly benefited by some simple scheme that is inexpensive.

Where the house is still under construction, less difficulty will be encountered in the decorative arrangements as, naturally, one has the advantage of close contact with architects and other professional assistants.

In the finished home, however, or in an old home, which one desires to refurbish, perhaps the same fortunate condition does not prevail, but this is just the place where our suggestions are most needed.

Paint itself is not expensive and yet its use is so conducive to comfort and pleasure that no housekeeper should any longer be content to endure a single room in the house that is not inviting and attractive.

For the benefit of our readers, there is given explicitly under each design the exact combination parts of the paint required for the decoration and, as the material can be obtained almost everywhere, a few rooms done over will amply repay the slight cost involved.



A VERY RESTFUL BEDROOM

Ceiling and Drop, S-W Flat-tone Cream. Wall, S-W Flat-tone Bright Sage. Stencil, No. 113. Woodwork, S-W Handcraft Stain Fumed Oak. Floor, Natural—S-W Marnot.



A MISSION LIVING ROOM IN GREEN

Ceiling, S-W Flat-tone Cream. Wall, S-W Flat-tone Bright Sage. Woodwork, S-W Enamel Pure White. Floor, Oak, Natural Transparent Filler and Marnot.

THE SHERWIN-WILLIAMS COMPANY, DECORATIVE DEPARTMENT, CLEVELAND, O.



A MODERN FLEMISH DINING ROOM

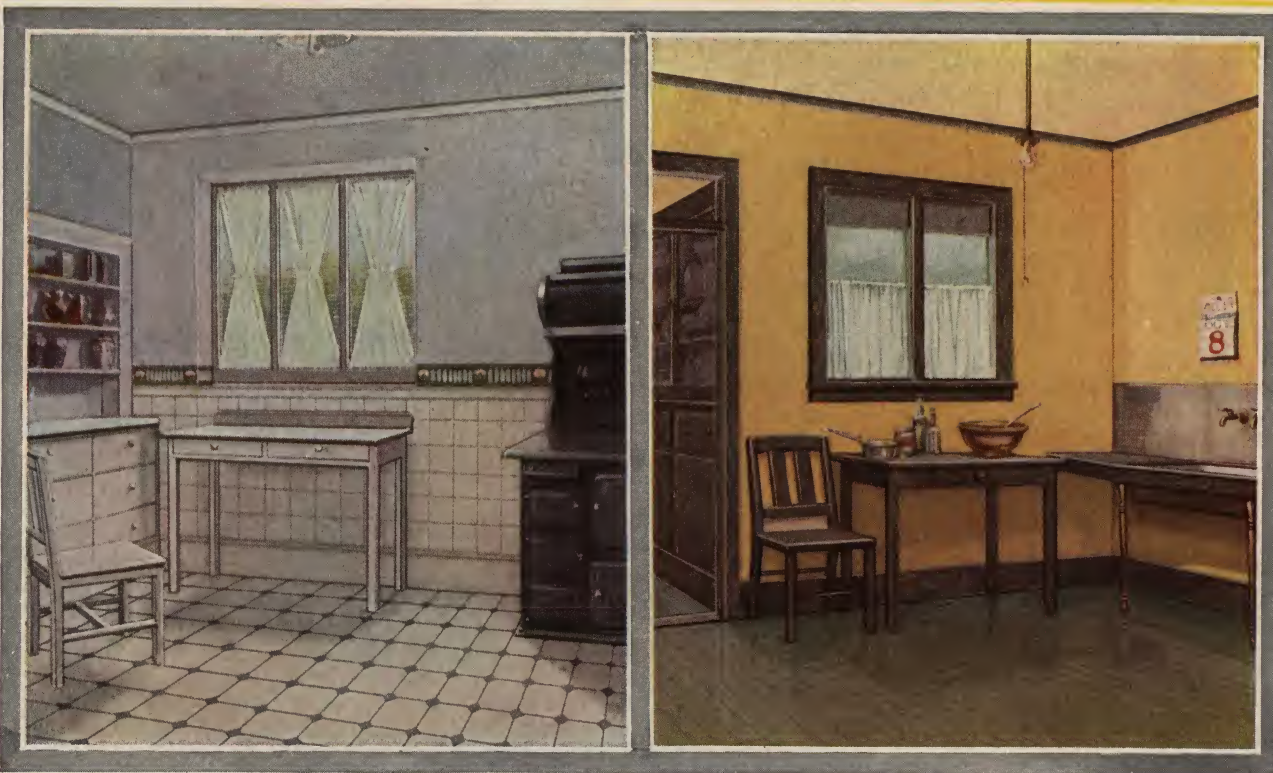
Ceiling, S-W Flat-tone Ivory. Upper wall, S-W Flat-tone System Effect No. 3. Lower wall, S-W Flat-tone System Effect No. 13. Stencil, No. 124. Woodwork Oak, S-W Handcraft Stain Cathedral Oak. Floor, Oak, S-W Antique Oak Paste Filler and S-W Marnot.



THE SMALL SUBURBAN COTTAGE

Body, S.W.P. 358. Trimming, S.W.P. Gloss White. Sash, S.W.P. Gloss White. Shutters, S.W.P. 461. Roof, S-W Preservative Shingle Stain B42. Porch Floor, S-W Porch & Deck Paint 48. Porch Ceiling, S-W Kopal Varnish. Exterior Doors, S-W Enamelastic White Exterior.

THE SHERWIN-WILLIAMS COMPANY, DECORATIVE DEPARTMENT, CLEVELAND, O.



TWO PRACTICAL KITCHENS

PART I—Ceiling and Wall, S-W Flat-tone Pearl Gray. Wainscoting, Keene Cement—tile like—finished with S-W Enameloid White. Stencil, No. 306. Woodwork, S-W Enameloid White. Floor, Linoleum in blue and white finished with S-W Durable Linoleum Finishing.
 PART II—Ceiling, S-W Flat-tone Cream. Walls, S-W Flat-tone Old Gold. Woodwork, S-W Handcraft Stain Silver Gray. Floor, S-W Inside Floor Paint Gray.



A SIMPLE COLONIAL DINING ROOM

Ceiling and Cove, S-W Flat-tone Ivory. Wall, S-W Flat-tone Cream. Stencil, No. 98. Woodwork, S-W Enamel White. Floor, Natural—S-W Marnot.

THE SHERWIN-WILLIAMS COMPANY, DECORATIVE DEPARTMENT, CLEVELAND, O.



LIVING ROOM IN MAHOGANY AND GREEN

Ceiling and Cove, S-W Flat-tone Cream. Wall, S-W Flat-tone System Effect No. 14. Stencil No. 205y. Woodwork, S W Handcraft Stain Mahogany. Floor, Natural—S-W Marnot.



A MISSION BEDROOM AND BATH

Ceiling, S-W Flat-tone Ivory. Wall, S-W Flat-tone Pale Olive. Stencil, No. 19. Woodwork, S-W Handcraft Stain Tavern Oak. Floor, Natural—S-W Marnot.

BATH—Ceiling, S-W Flat tone Ivory. Wall, S-W Flat-tone Ivory. Stencil, No. 103. Wainscoting, Keene Cement—tile like—finished with S-W Enamel White. Woodwork, S-W Enamel White.

THE SHERWIN-WILLIAMS COMPANY, DECORATIVE DEPARTMENT, CLEVELAND, O.



A FRENCH GRAY BEDROOM

Ceiling and Drop, S-W Flat-tone White, Wall, S-W Flat-tone French Gray. Stencil, No. 18y. Woodwork, S-W Enamel White. Floor, S-W Inside Floor Paint Gray.



THE DIGNIFIED COLONIAL HOUSE

Body, S.W.P. 375. Trimming, S.W.P. Gloss White. Sash, S.W.P. Gloss White. Shutters, S.W.P. 498. Roof, S-W Preservative Shingle Stain B41. Porch Floor, S-W Porch & Deck Paint 48. Porch Ceiling, S-W Kopal Varnish. Exterior Doors, S-W Handcraft Stain Mahogany.

THE SHERWIN-WILLIAMS COMPANY, DECORATIVE DEPARTMENT, CLEVELAND, O.



A LIVING ROOM

Designed by Works of L. & J. G. Stickley, Inc., Fayetteville, N. Y.



A DINING ROOM

Designed by Works of L. & J. G. Stickley, Inc., Fayetteville, N. Y.



COMBINATION BENCH AND TOOL CABINET

Made by Hammacher, Schlemmer & Company, New York.

The illustration shows the Combination Bench and Tool Cabinet. A set of practical tools is now a necessity in the home. It serves both for pleasure and profit and, as an educational factor, is unquestioned. In a combination of this character, with bench and tools so handily combined, everything is convenient and ready for use.

The manual training movement that has gained such headway throughout the entire country is responsible for the demand for practical outfits of this kind; nor is the use of tools by the novice confined to educational institutions—we find that the tinkering spirit has gained disciples amongst professional and other men, in keeping with the general increase in popularity of carpentry, and particularly so by the great army of people who live within commuting distance of the cities and who go to the suburban districts principally because they want a little more than the conventional city apartment—room for a real house with a basement and a place suitable for a regular work shop wherein the long evenings may be shortened into thorough enjoyment and not a little education.



The Bathroom of To-day

Illustrated by Leading Manufacturers



THE bathroom of to-day is a feature of primary importance in the well appointed house.

It is the tendency of the times to put more than one bathroom into even the smallest houses. One bath to a house, which used to be considered quite sufficient even in elaborate dwellings, is now only an aggravation. Everybody bathes in the tub each day; and with only one tub in the house and several people anxious to be ready for breakfast on time, bathers and non-bathers engage each morning in a game of "who will get there first." In the older houses, where one bathroom has

been in use for many years, there is a tendency nowadays to turn another available small room or large closet into one of those immaculate and attractive bathrooms which lure the eye of every one who is interested in houses.

If you are installing a new bathroom in an old house, or planning to make the new house comfortable with plenty of baths for all, make things not only as delightful to the eye as is possible, but as convenient as possible for the one who has the work to do. If practicable to have a bath on every floor, do so by all means; you will not have a single regret. Time and temper saved often "save the day." And a very important consideration is the bath for the maids. If not possible to have it near their rooms, have it adjoin the laundry, and make it as attractive to them as your bathroom is to you.

It is said that the average home-maker still classes plumbing among the things he can't and doesn't want to understand. However that may be—the plumber is probably the man who can tell you the real truth of it—the average home-maker is educated up to that point where he wants the outward and visible sign of the plumbing to bear witness to the fact that he knows what constitutes a sanitary, bright, immaculately clean and comfortable bathroom.

One should have the maximum of comfort and cleanliness with the minimum of care. The plumbing, of course, requires expert advice, and it were well to be sure when you are building that the man who has your pipes and traps in charge, thoroughly understands his business. Simplicity in the form of the piping is a safeguard against plumbing ills and plumbers' bills; a good and simple method is apt to be a secure one; while the complicated method forms a system of piping with opportunities for evaporation and leakage. It is said by an authority on plumbing investigations, that if we only knew it, we could have safer systems than are now generally used, for half the money.

With the piping question settled by the help of experts, the rest is a matter of judicious personal selection of wall covering, floor covering, type of tub, lavatory, closet, shower and needle baths, sitz bath, and the various fixtures which add to comfort and convenience.

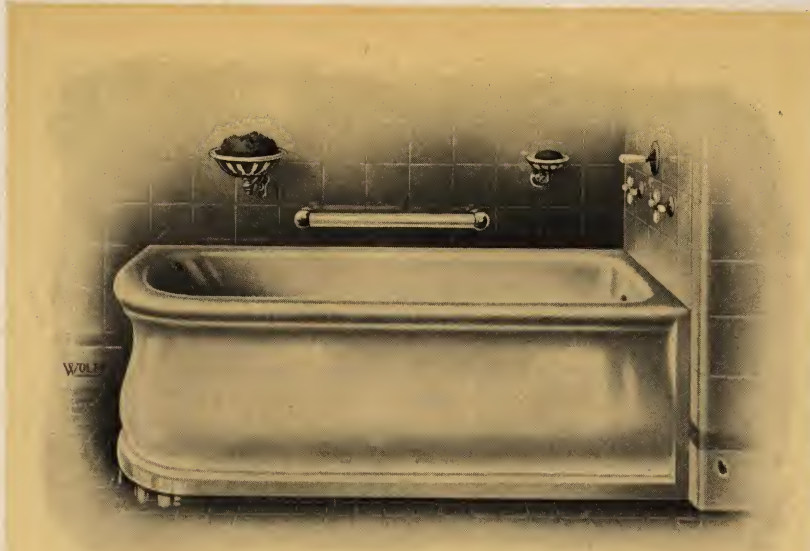
The cost of the bathroom of course depends entirely upon selection of the fixtures; it is said to be possible to fit up a comfortable bathroom for \$75.00. But it is undoubtedly the part of wisdom to spend as much more as may be necessary to make the bathroom absolutely sanitary in every respect.

A sanitary wall, which will stand splashing and may be washed and scrubbed, is desirable. Pure white for the bathroom seems most suitable; but unless relieved by a little color decoration it gives such an air of coldness that one is almost chilled. It is therefore suggested that there be a simple trimming of color (if not a whole wall of delicately tinted tile), no matter what style of wall covering is used; whether it be an enameled paper, linoleum, glazed, semi-glazed or opalescent glass tile, enameled brick or merely paint. The glazed tiles are usually set in cement, or over cement plastering on steel metal lath. Sometimes the entire walls are covered with the same material, but more often a five-foot wainscot of tile suffices. Never use ordinary wall paper, as the steam and moisture soak the paper and cause it to fall off or to discolor. It is best not to paint directly on the plastered walls, as cracks may develop and spoil all the decoration. Glazed tile paper is effective, but there is very little saving between the cost of this and the cost of tiling.



Pure White Bone China Bath Fixtures. The Trenton Potteries Company, Trenton, New Jersey.

If it is possible to "round" your corners, in planning the bathroom, you will find it a help in cleaning. If the corners are rounded, as well as the joining of the wall and floor, there will be no place for the dust and dirt to accumulate. A floor of unglazed ceramic tile is eminently satisfactory, and much warmer than the marble floor which used to be considered the handsome and most satisfactory flooring. A new floor material, which can be used to advantage in the bathroom, is cork tiling.



The "Stuyvesant" bath tub, made by the Monument Pottery Company, Trenton, N. J.



The "Gotham" bathroom combination, by the Monument Pottery Company, Trenton, N. J.

The best tubs made to-day are those which show an enameled or porcelain finish. The old tin tub has disappeared, and well may we rejoice. When it comes to the selection of the tubs for the house, it is merely a question of deciding whether one wants solid porcelain or enameled ironware. When attempt was first made to apply an enamel or porcelain coating to an iron body, it was found to be very difficult as well as costly. But the manufacturers of the present day have solved the problem of successfully applying enamel to metal in such a way as to bring the enameled bath within the reach of all.

There is as great a variety in the shape and construction of bath tubs as in any other article of furniture. The matter of whether your bath shall stand on four legs, how far they shall raise it from the floor, or whether it shall rest on its own base, is one which will not occur to the average home builder; and yet they are im-

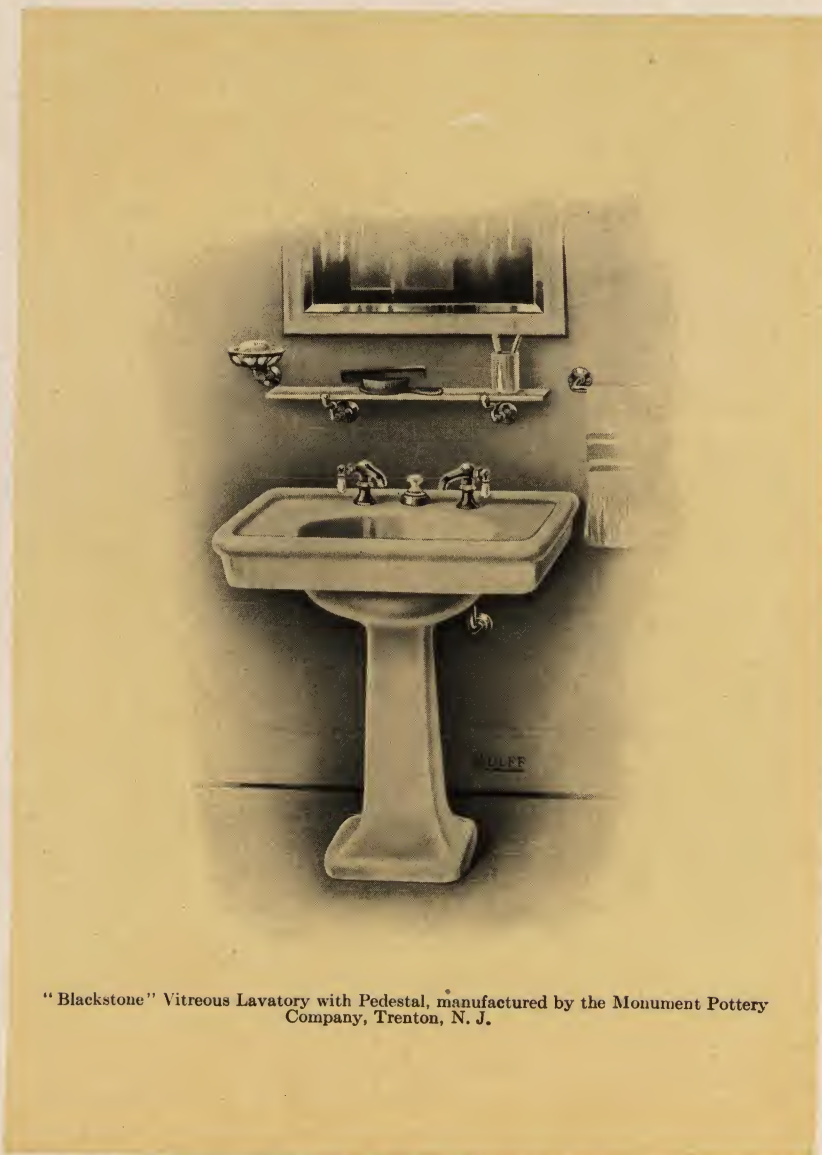


portant points. Also the question as to what shape tub is best suited to your requirements; whether the extension end is desired, to allow of a reclining position, or whether the additional full length of the bath is desirable. One has to live so intimately with one's bath fixtures that it is well to be sure of satisfaction from the beginning. Another question which needs consideration is the arrangement of the faucets and waste. Sometimes if they are placed in the center of the side of the tub, they are in the way; and at other times they will be inconvenient at the end. All of these little questions need attention in order to secure perfect satisfaction.

In most cases, the fittings are included in the price of the tubs; but occasionally one will find a tub which is sold without fixtures; in buying in this way be sure to consult the concern from which you purchase the tub for the correct style of fixture to suit the tub.

Some of the dealers show a novelty in a bath which is to occupy room space instead of wall space and which has, above the rim of the tub and three quarters of the way about it, a guard rail mounted on stanchions. This is a splendid idea, for the soapy slipperiness of the bath has been responsible for many serious accidents. An enameled guard rail to attach to the wall back of the tub is a safety appliance not to be overlooked; it is convenient, too, as a hanging place. Many of the tubs are decorated with borders which are executed by hand. These borders, as well as gold bands and lines, are durable and artistic. The decorations can be had in plain Greek bands, fleur-de-lis, garland, flower and empire borders, as well as plain bands.

The sitz bath and foot bath are made especially to fit in with the design of the larger tub, and come either with feet or to rest upon their own solid base. If



"Blackstone" Vitreous Lavatory with Pedestal, manufactured by the Monument Pottery Company, Trenton, N. J.



the large bath is decorated, of course the other fixtures will be decorated to correspond. The foot and sitz baths are not only luxurious to-day, but positive necessities in a well equipped bathroom. The "baby" bath is perhaps a luxury, but is nevertheless a great convenience. It stands on an enameled pedestal, and being high, saves the leaning over which the lower tubs always entail when bathing the babies.



Corner of a model bathroom, showing convenient arrangement of accessories, made by the Sanitary Furniture Co., Grand Rapids, Mich.

The shower bath is another luxury that has become a necessity and the various changes which the manufacturers have shown in their form within a few years make it a positive delight to own a well constructed shower. The tendency seems to be toward a separate shower fixture which is provided with all sorts of comfort-making devices; but the separate fixture adds just another expense to the total cost, so that there is also a great demand for the shower which may be used directly over the tub. The best fixtures are, for ordinary requirements, made of nickel-plated brass; on some of the more expensive faucets the handles are of porcelain. Another delightful appliance is the needle bath, and this comes either as a separate bath or in combination with a regular shower and shampoo. There are also provided with these baths various other small sprays for different purposes. The separate shower is provided with a porcelain standard or receptor, which has waste fittings the same as the bath tubs. The protective curtains are made of rubber or water-proofed white duck, and pull readily on large easy-running rings. The delight of ownership of a good shower bath is well worth economy in some other part of the home, for the bath is a remedy for many ills.

Solid porcelain or enameled iron lavatories give the best service and are the most desirable. The designs are legion, and include, among many forms, those on an enameled column base through which the waste pipes run; these are very dignified and artistic. Those supported by nickel-plated legs and frames are more delicate in appearance, but show the waste pipes underneath. Some consist merely of the basin and fixtures, while others are supplied with ornamental brackets to support the weight; still others have a back which protects the wall for a few inches and a deep apron in front where others merely have a roll rim. Still another style stands on one leg, not as large as the pedestal at first described, and has the waste pipe cunningly stowed away behind it.

The earthenware closet is the most satisfactory in the fine bathroom, as it will not stain. In the immaculately white room the woodwork of the closet should

be cellu-enamel which cleans easily and when clean is readily kept clean, although an oak or dark wood is quite as sanitary. This refers as well to the tank as to the seat itself, when the tank has a wooden exterior. Most of those in use to-day, however, have the all-over enameled tank, but solid porcelain or vitreous ware tanks will supersede all others in a few years. The low tank seems to be a favorite to-day, although the high tank is still in use. The low tank reduces the noise of rushing water. The flush and drain are the most important points of consideration in selecting the closet, although the position of the fixtures and the noise of the rushing water are also a consideration; a careful examination of all the best makes is recommended. For good work flush valve closets are perhaps more desirable.

The hundred and one little accessories of the model bathroom are what make it attractive to the feminine eye, rather than the large furnishings, which invite masculine attention. The bright nickel-plated and crystal-glass towel-rods delight the eye; the plate-glass shelves are capable of assuming much brilliance under the careful polishing hand of the housewife. Then there are china and enamel soap dishes and sponge dishes, nickeled brass and enameled paper holders and hanging baskets for soiled towels, china tooth-brush glass and holder, plate-glass mirrors, medicine chest, cut-glass tumblers and china shaving mugs, comb and brush holders, shaving mirrors, the bathroom scale for your daily weight and the plate-glass shaving mirror with jointed rod which permits of a turn in any direction.

A bathroom cannot be adequately equipped without a small chair or at least a round-topped stool with rather short legs. These may be of any dark wood desired, but are particularly serviceable as well as attractive in plain white enamel or celluloid finish. The adjustable bath seat is also a necessity, especially where the various uses of the tubs are represented only by one large bath.



Stool and medicine cabinet — covered with a white celluloid preparation, called Pyrolin — made by the C. F. Church Mfg. Co., Holyoke, Mass.



The Choice of the Heating System

By W. W. MACON

Secretary, American Society of Heating and Ventilating Engineers

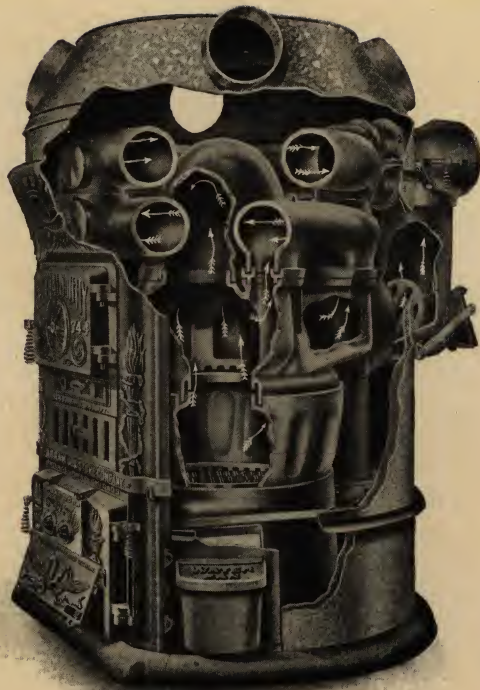
Illustrated by Leading Manufacturers



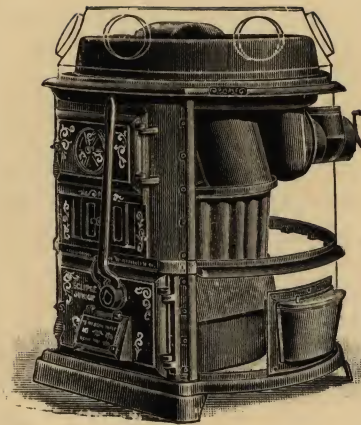
THE choice of the heating system for the projected dwelling should not be decided solely from the standpoint of satisfactory heating. Sanitation as influenced by heating (though it has only within recent months come to be a factor) ought to be considered. If the following does not enlighten the home owner in this hitherto unapprehended detail as well as inform him regarding the difficulties and advantages of the available systems, it will fail of its object. Maintaining temperature at some desired level with minimum annoyance and at minimum fuel cost is one thing; healthful heating is another.

There are in general three methods of warming the home—the warm-air furnace, the steam-heating system and the hot-water heating system,—the heating stove no longer being dignified with attention in the home of any pretensions. There are modifications of these systems designed to accomplish special objects, like reduction in sizes of apparatus, cost of installation and cost of operation. There is no one best system, all things taken into consideration, and any one may in general be used in any one case. The attitude or prejudice of the owner, the question of first cost, the question of fuel consumption and the character of the building, all have a bearing on the final selection. A satisfactory equipment is possible with each system and of course the converse is true.

It is probably not necessary to explain at length in what the steam or the hot water heating system consists. The heater in the cellar, commonly called the boiler, is partly filled with water for a steam system and wholly, including the entire piping system, filled with water in the case of the hot-water heating system. With the steam plant ebullition must take place and the vapor of water, or steam, forms rapidly enough to develop a pressure usually but slightly over that of the atmosphere. The pressure suffices for driving out the air which may have accumulated in the piping and the room heaters or so-called radiators. Once the air is removed the plant includes a boiler, in which the water is turned into steam, and a piping system by which the steam is conveyed to the radiator where the room air is warmed. The room air by abstracting the heat brings about a condensation of the steam, which, reduced to the state of hot water, drains back to the boiler either through the steam supply pipe, in the case of relatively small systems, or by separate pipes in the case of larger systems. One of the recent



Special Novelty Heater made by the Abram Cox Stove Co., Philadelphia, Pa.



Furnace made by the Buckwalter Stove Co., Royersford, Pa.

systems produces a vapor by boiling water under vacuum and circulates it through the radiators. The object of this Vacuo-Vapor System is to get the advantage of low temperature heat with a low fire box temperature. The system requires no air valves on radiators and returns all water of condensation as it forms in the radiator back to the boiler automatically.

In hot-water heating, as stated, the entire apparatus is filled with water. As the water becomes warmed in the boiler, it expands and for the same volume, or cubic foot for cubic foot, weighs less than the cold water outside of the boiler. The result is the heated water is forced out of the boiler and the incoming supply to the boiler then becomes warmed and a circulation ensues through the piping and radiators. On account of the practical incompressibility of water, it is necessary to arrange for the increased space taken up by the water after it is

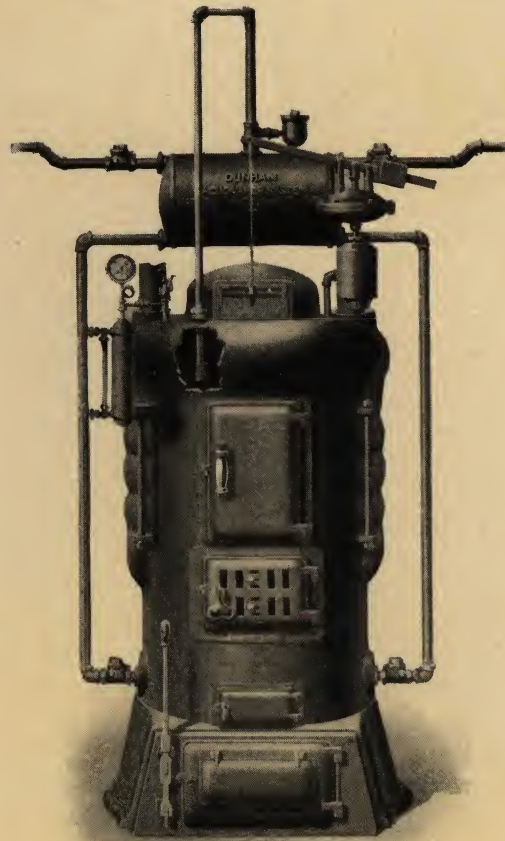
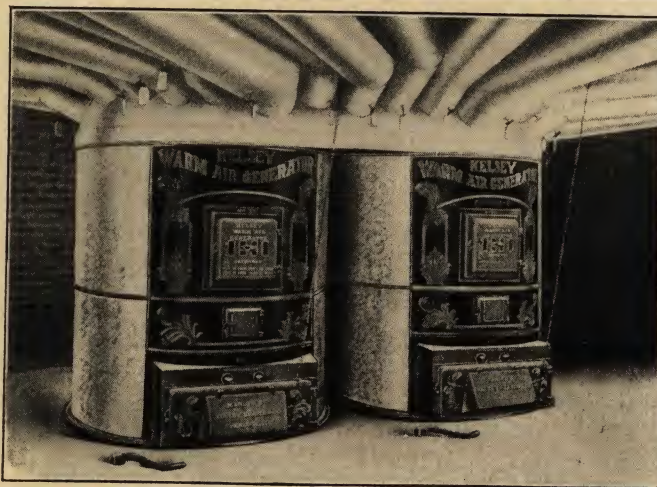


Illustration showing Vacuo-Vapor Apparatus, made by C. A. Dunham Co., Marshalltown, Iowa.

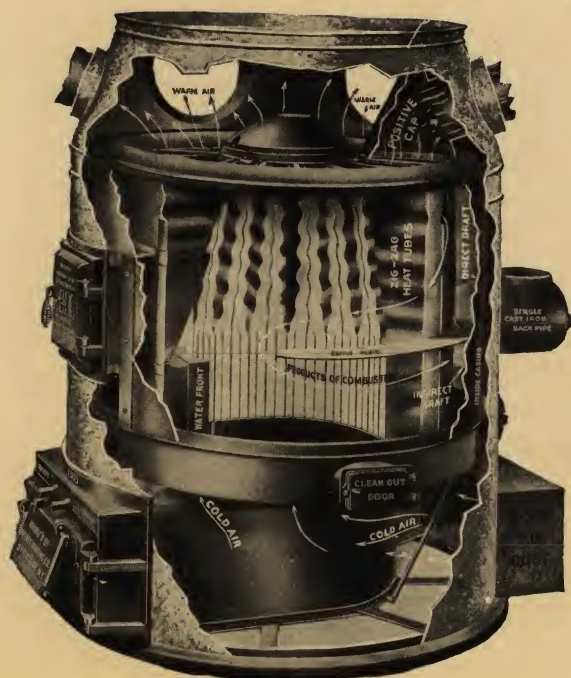
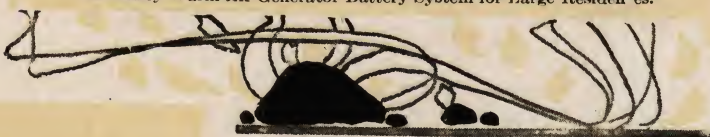
thoroughly warmed, and usually above the highest point of the system is a tank large enough to receive the water on its increasing in volume without allowing it to go to waste with the heat contained.

The radiators of both the steam and hot-water systems are usually located in the room warmed and are then known as direct radiators. They may, in a slightly different form, be enclosed, say in the cellar, and like the warm-air furnace system be provided with an air supply duct and a flue extending from them to a register in the room floor or wall.

As water at sea level boils at about 212 degrees Fahrenheit, it follows that the internal surfaces of the steam radiator are usually at 212 degrees or above. This would mean that the radiator is likely to give off more heat than needed in relatively mild weather unless automatic or other control were employed. As a matter of fact this is exactly what occurs, and the fuel cost of a direct steam system is sometimes more than the fuel cost of a furnace-heating system, while theoretically the direct radiating system, accompa-



The Kelsey Warm-Air Generator Battery System for Large Residences.



Sectional View of the Kelsey Warm Air Generator showing construction with the Zig-Zag Heat Tubes.



One of the Kelsey Heat Tubes.

nied with a minimum amount of ventilation, as ventilation is generally understood, requires on that account a less amount of fuel than a warm-air heating system.

With a hot-water heating system, the condition of the fire may be closely maintained in relation to the severity of the weather. This means that to a remarkable degree the temperature of the water flowing through the system can be controlled. The control then means that the amount of heat supplied to the radiator is about what is needed for the demands and there is minimum waste heat.

The warm-air furnace is a development of individual room heating by means of stoves. The stove itself, remodeled to suit the conditions, was taken to the cellar, and it was surrounded by a sheet metal casing; a duct was connected to the casing to admit air to the enclosed space and air



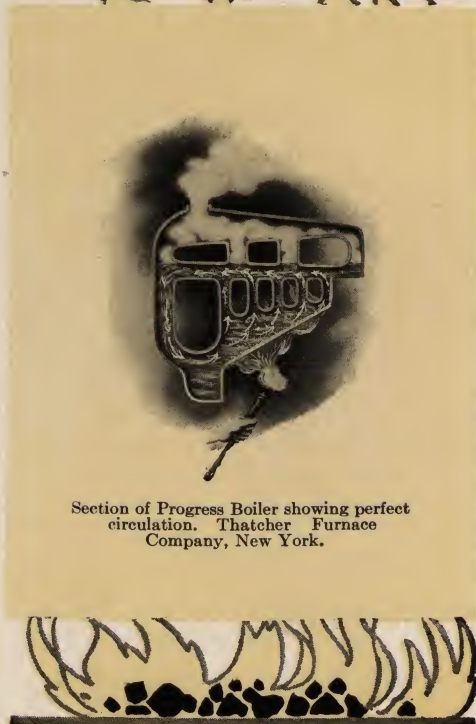
Patent Anti-Clinker Grate as used on Tubular Furnace. Made by the Thatcher Furnace Company, New York.



Firepot of Tubular Warm Air Furnace. Thatcher Furnace Company, New York.



Progress Steam Boiler. Thatcher Furnace Company, New York.



Section of Progress Boiler showing perfect circulation. Thatcher Furnace Company, New York.



pipes were fitted to the top of the enclosure to conduct the warmed air to the different rooms. The seeming simplicity of the system led to its being regarded as unworthy of much study and its installation was entrusted to indifferent contractors with the result that all too many furnace-heating systems have failed to arouse enthusiasm among their users. Properly installed, they afford a continuous supply of pure air, for, statements to the contrary notwithstanding, warm-air furnaces of gas-tight construction are obtainable. Indeed, late years have witnessed considerable improvement in forms of construction of warm-air furnaces. They aim largely at increasing the efficiency.

The complaints from these systems to the effect that gases are often delivered to the rooms, are often the result, as with other forms of heating apparatus, of stoking a vigorous fire with green fuel and immediately checking the draught so that the gases distilled must perforce leak to the cellar, and thence to the rooms above through the fire door, provided it is shut, which is unfortunately none too often the case. It is rarely, if ever, advisable to attempt to check a fire by leaving open the fire door.

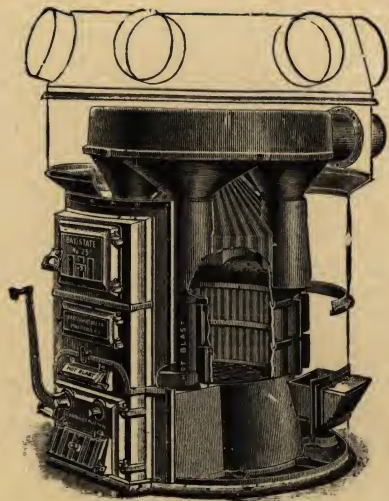
The warm-air furnace system is usually much the cheapest form of heating apparatus. Theoretically, it is the most expensive to operate, for it presupposes a very generous amount of air supply, which, after giving up its surplus heat to the rooms and the room walls and windows, escapes to the outdoor atmosphere where it performs no useful work. Practically it is not, largely because of the overheating experienced with other methods of heating. If, as a means of ventilation, it is acknowledged to be efficacious, it is reasonable to assume that the excessive ventilation and the high operating cost is offset by the reduction in sickness for which it ought to stand. General looseness of building construction and the porosity of building walls are usually entirely sufficient for allowing for the escape of the spent air, but special means for the escape of the air from the rooms by means of open fireplaces and exhaust flues may become increasingly important with tighter building construction and more desirable where maximum resistance to outside winds is needed to warm properly the most exposed locations of the house. It is but fair to state, however, that great improvements in furnace construction and in methods of installation have been made, so that large residences are being evenly heated, and it is claimed just as economically as by any other sys-



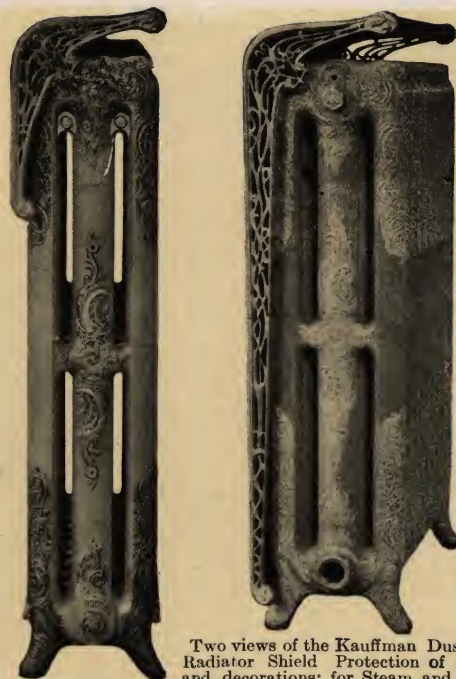
Underfeed Furnace made by the Peck-Williamson Co.,
Cincinnati, O.



Underfeed Boiler made by the Peck-Williamson Co.,
Cincinnati, O.



Furnace made by the Barstow Stove Co.,
Providence, R. I.



Two views of the Kauffman Dustless
Radiator Shield Protection of walls
and decorations; for Steam and Hot-
Water Radiators. Manufactured by Kauffman Heating and
Engineering Co., St. Louis, Mo.



Illustration showing the principle of the American Radiator.



Sectional view of Steam and Hot-Water Boiler, made
by the American Radiator Co., Chicago, Ill.



Jewell Heat Con-
troller made by
the Jewell Mfg.
Co., Auburn,
N. Y.



Furnace made by Union Stove
Works, New York.

tem, while the constant change of air and good ventilation insure most healthful conditions.

To recapitulate, the warm-air system is the cheapest system to install but not necessarily the cheapest to operate. The steam-heating system comes in cost intermediate between the furnace system and the hot-water system, and similarly its fuel cost, at least theoretically, comes between that of the systems mentioned. The hot-water system's first cost is greater than that of the steam for the reason that larger radiators are needed, because of the fact that the water is usually never allowed to approach too closely to the boiling point, and the piping to supply the radiator must usually be larger than steam piping, and the piping to carry the water from the radiator must be equal in size to the supply.

In high-class residences, it is usual to find the use of indirect radiators, that is, the radiators enclosed in an air-supply system, and this is partly arranged to avoid the obtrusiveness of the radiator in the leading rooms, particularly the hot-water radiator, which usually is 50 or 60 per cent. greater in size than the steam radiator. In considering a hot-water system, it must be remembered that if the building is likely to be vacated for periods during the cold weather, it is necessary to draw off the water to prevent freezing.

The steam-heating system has an advantage over the hot-water in allowing for quicker heating in the event of sudden changes in outdoor temperature conditions, but by the same argument it more quickly ceases to continue warming. In the event of careless attention, quick heating is one of the attractive features of the warm-air system, and this fact is often recognized in the generous provision made for warming the dining-room, which is the one room demanding warmth on a cold morning.

To meet the objections of the steam system, in respect to its failure to submit readily to heat regulation, special or modified systems have developed. These, in part, comprehend the desirability of preventing a return of air to the system when there is a rapid condensation of the steam and therefore a tendency for a vacuum to occur within the radiators. When air is excluded, the condition of pressure within the system can be at times considerably below the pressure of the outside atmosphere and then the water in the boiler will boil at a temperature considerably below 212 degrees. Then vapor will fill the system at a low temperature and in this way the temperature of the radiator may be made to approach the temperature of hot-water radiators. Other modified apparatus aim at the use of a valve on the supply end by a radiator, so that only the amount of steam may be delivered into the radiator as may be needed by the conditions. A detailed description of any of these systems is impracticable in a book of this scope, and it is wise to ask the heating engineer or contractor for his advice and to take advantage of the experiences of the makers of such apparatus.

Modifications of the orthodox hot-water heating system are not so numerous. There is apparatus, however, for allowing one to bring the temperature of water to a point above 212 degrees in the radiator without causing boiling. In effect, such apparatus is an automatic relief set so that, should the boiler supply too much heat, the pressure attained by the water can be relieved without causing damage. It is obvious that with hot-water systems of this kind, the sizes of the radiators may be selected on the basis of the high temperature sometimes available and consequently the radiators may generally be smaller than would otherwise be the case. It is also claimed for these systems that owing to the higher temperature possible more rapid circulation is available, and smaller pipe sizes suffice. The simple appliance accomplishing this modification has been found especially valuable in rectifying existing systems which have been more or less failures. One manufacturer conspicuous for the attention given to hot-water heating has also made a noteworthy radiator valve for use with hot-water radiators. It requires only

one end connection to the radiator, and a partial turn of the valve wheel handle suffices to open and close the valve.

Nothing of the foregoing has had much to do with the sanitary side of the subject, nor has it been stated what one system is pre-eminently best. In practically any case one of the three systems with the modifications mentioned could be provided and give satisfactory performance. The one system which would perhaps be ill-advised in the extended house is the warm-air system, as it is not advisable to convey the air horizontally far from the furnace itself. There are cases, however, of the rambling type of houses so warmed, but here more than one furnace has been employed sometimes in different spots in the cellar. One interesting modification to warm-air heating, lending itself particularly to the large area house, is the use in the main air supply pipe of a small electric fan. This can be made to increase the heating capacity of the system in cold weather; to secure quick heating, say in the morning, and to assist such parts of the house as may be temporarily chilled by the action of high winds.

No matter what system one provides, utmost care should be taken to prevent collection of dust. In an indirect system, like the furnace system or the steam or hot-water with indirect radiators in metal or other ducts, changes in direction should be accomplished with curved surfaces and in general no place be left for pockets, unless these are provided with openings to allow for cleaning. The floor register is bad as a dust receptacle, as well as for some other reasons. Besides harboring bacteria, dust is so largely made up of animal excreta that it is subject to decomposition with temperatures obtaining in modern heating systems. It has come to be a firm belief of numerous investigators that it is the distillation, not necessarily the combustion or burning of dust, that forces us to seek methods of ventilation, and which gives to rooms the stuffiness complained of. The decomposition results in ammonia gases and traces of carbon monoxide, both highly poisonous to the human being, and sometimes in a complex organic compound known as acrolein. All of these are irritating to the mucous membranes of nose and throat and on that account tend to expose the body to one of the so-called impure-air diseases,—tuberculosis, pneumonia, influenza and the like. This fact indicates the importance of excluding dust as much as possible from the house.

It demands care on our entry to the house, in carefully using the door mat; it renders wise the use of a filter for the air supply, and it puts a premium on an efficient dust-removing system, such as the popular vacuum cleaner. For filtering the air supply in the average home, an arrangement which interposes minimum resistance to the air flow is necessary, and it is advisable to provide some large intake chamber in the cellar at the cold-air inlet to keep the air as quiescent as possible and give the dust an opportunity to settle. Cheesecloth or similar material has also been used with success, but to avoid forcing the air to pass through the cheesecloth the material has been stretched on frames, set so that the air must take a zigzag path and by rubbing over the surfaces allow the extending fibers to catch the dust.

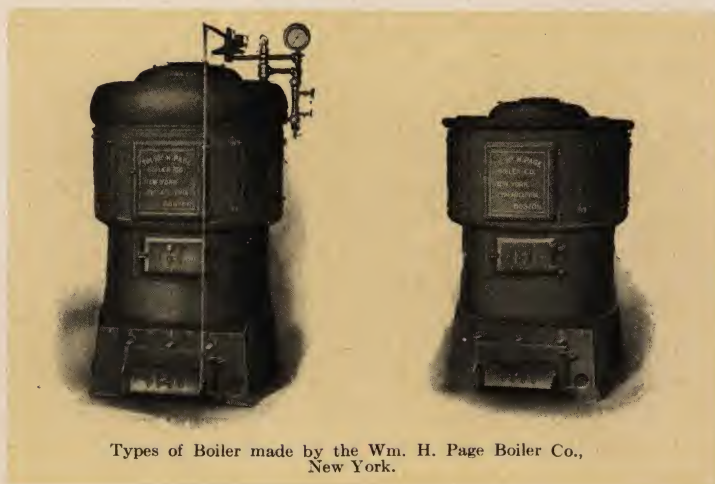
The same charge against the existence of dust applies to the direct radiating system. It certainly advises the use of the smoothest possible radiating surface. Then dust may collect with difficulty only. It demands where space is available the use of radiators set with the sections or loops of the radiators at sufficient distances apart to leave each loop visible so that it can be readily cleaned. Incidentally, space permitting, the extended radiator is good, as it allows the cool air to get to the heated surfaces of the radiator in larger volume and thus carry off the heat rapidly.

Finally, with respect to the sanitary side of heating, it is probably wise to provide for humidifying apparatus. Cold outside air contains, as a rule, none too much vapor or moisture. When it is warmed none is added to it unless arrange-

ments are made for the purpose. The expansion of the air and the greater amount of water vapor which may exist as a gas in the atmosphere at the higher temperature makes the indoor air extremely dry without provision for humidifying. Physiologists are unanimous on the desirability of having the relative humidity of the indoor atmosphere approach that of the outdoor air. With the indirect system water pans or arrangements for accelerating an evaporation of water in the air supply is an easy accomplishment. In direct systems, one promising arrangement is to provide a special air supply for the hall of the dwelling with an evaporating pan supported in the air duct.

Another detail which should be mentioned is the desirability of providing temperature-controlling apparatus. The American home is, as a rule, kept at too high a temperature. Without doubt it is merely a matter of usage to accustom the body to a lower temperature than is now common in this country. There are numerous relatively inexpensive equipments arranged to open up and shut off the draughts in accordance with the temperature of some one of the important apartments of the house. Besides preventing overheating, which is apt to be overlooked by the inmates who are not aware until too late of the increasing temperature, they tend to bring about economy in preventing the waste due to excessive heating.

During the past few years a new principle of coal burning, in which fuel is fed from below instead of thrown on the fire, has been advanced as the greatest economy in heating cost. This method insures the burning of smoke and gases which so often escape up chimneys and represent wasted money. It is illustrated on page 111.



Types of Boiler made by the Wm. H. Page Boiler Co.,
New York.

The New Combined Coal and Gas Ranges

Illustrated by Leading Manufacturers



O greater step in recent years has been made to simplify and lighten the work in the kitchen than the invention of the Combined Coal and Gas Cooking Range. A range of this description has many advantages and conveniences that are not found in the range using only one fuel.

The origin of the Combined Coal and Gas Range came from the coal range manufacturers, who, appreciating the many advantages of cooking by gas and at the same time realizing the advantages that a coal range has, beset themselves to make a range that would use both fuels.

These ranges are made in a variety of styles according to the ideas of the different manufacturers. In some cases a separate gas range, consisting of a cooking surface or top, broiler, and oven, is attached to the end of the coal range. Another style is what is termed the elevated attachment, in which the broiler and baking oven are mounted above the range, while the cooking surface is on a bracket at the end. Still another type is made with the elevated broiler and oven, while the cooking surface is so arranged that it can be swung down over the top of the coal range, and, when not in use, is swung back underneath the elevated broiler and oven. This latter style is desirable in kitchens where every bit of space is at a premium. Other combined coal and gas ranges have been manufactured with the gas burners in the coal range. These have never proved very satisfactory, as the soot and ashes from the coal fire interfere materially in the operation of the gas burners.

The Combined Coal and Gas Ranges which are made by the coal range manufacturers are, as a rule, very serviceable. They are really two ranges in one, and not a coal range with an auxiliary gas oven nor a gas range with coal attachment, but two complete high grade ranges occupying the space of one.

The advantages of a range in which coal and gas can be used as desired are many, among which may be mentioned:

- (1) The coal range will keep the kitchen and that portion of the house warm during the winter without additional cost. On cool days during the fall and spring, when the heater is not in operation, the coal range will take the chill off the entire house.
- (2) The coal range will also heat the water in the kitchen boiler without additional expense.
- (3) The gas attachment is always ready for use.
- (4) The gas attachment insures a cool kitchen in the summer.
- (5) The gas attachment is economical, as fuel is only used as required.
- (6) With the gas range, there is no coal nor ashes to carry.

There are, however, certain disadvantages which must be taken into consideration for those who use only a gas range.

- (1) There is no way of heating the kitchen with a gas range in the winter time.
- (2) The gas range will not heat the kitchen boiler.

The second objection can be readily overcome by the installation of a gas tank heater for the kitchen boiler. These cost from \$10 up, and will furnish large quan-

tities of hot water at a small cost. In the winter time the coal range will heat the water in the kitchen boiler without additional cost.

The all-gas ranges must be used in flats and apartment houses where the rooms are small and no provision is made for carrying coal and ashes up and down stairs. On the other hand, those who use both coal and gas, but have to make a choice between them, invariably choose the coal range. This is good evidence that the coal range is in the long run more convenient and better adapted to general housework than the gas range. Those who have used a Combined Coal and Gas Range find them most satisfactory.

Cooking, even under the most favorable conditions, is trying work; and, for the housewife who cannot afford the luxury of a maid, cooking over a hot stove is drudgery. The



Ideal Stewart Range with End Gas Attachment and High Warming Closet. Manufactured by Fuller & Warren Co., Troy, N. Y.



Stewart Range with Elevated Gas Oven and Broiler and three-hole cooking surface. Manufactured by Fuller & Warren Co., Troy, N. Y.



The Princess Novelty Combination Range, made by the Abram Cox Stove Co., Philadelphia, Pa. This range requires no blacking.



The Combination Range of the Michigan Stove Works, Detroit, Mich.



The Buckwalter Co.'s Stove, manufactured at Royersford, Pa.

woman who has to cook three meals every day, winter and summer, deserves more consideration than she usually receives. In the planning of a kitchen, it is, therefore, advisable to consider carefully this important part which is so often neglected. The installation of the most approved cooking apparatus will pay the extra cost many times over in satisfaction, comfort, better cooking, and reduced expense.

In the selection of a range, the purchaser would do well to carefully consider the following points:

(1) Do not buy a cheap range under any circumstances. It does not pay.

(2) Do not be misled to believe that the smooth appearance of outside castings indicates a well-made range. Some manufacturers use a paint on outside castings that hides imperfections and poor workmanship until there is a fire in the range. Examine the inside castings carefully. See that they are smooth, well fitted, and all joints



The "Astor" Combination Coal and Gas Range, made by the Union Stove Works, New York. The ovens for broiling and baking are of the ordinary pattern; but the attachment for broiling, when not in use, is placed out of the way underneath the ovens. When in use, it is lowered to the top of the coal range, thereby economizing much space. The connections are all of solid iron pipe and no rubber tubing is used.

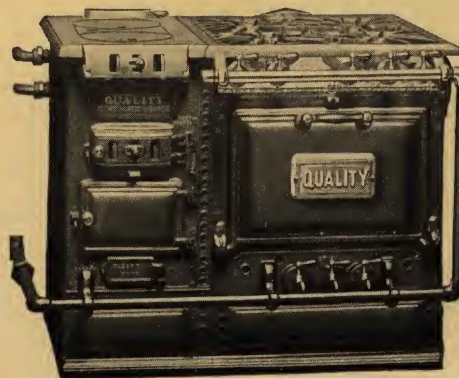
carefully cemented. See that the grate and castings that come in contact with the fire are extra heavy. Also that the fire-brick fit well, there being no chance for leakage of air, which would impair the draft and seriously interfere with the operation of the range.

(3) Select a range with ample size firebox. Better results both in operation and economy are obtained with a large firebox half full of fuel and under slow combustion than if the firebox is filled to the top.

(4) See that the oven is good size. Do not select a range that has the upper corner of the oven cut off so as to make room for the firebox. A good large oven is very desirable.

(5) The range with one wide flue passing entirely around the oven will always give better results than where the flues are divided. The divided flue decreases the area, makes a sluggish draft, and quickly fills up with soot.

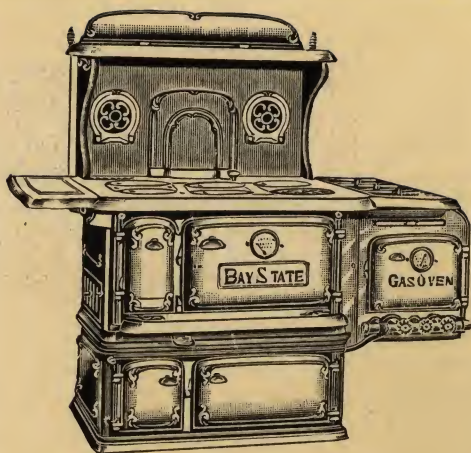
(6) In the selection of the gas attachment, be sure that you fully understand the location and operation of the oven and broiler. In some makes it is necessary



A gas range with a coal-burning firebox to heat water and kitchen and do top cooking in winter months. Gas water heater when desired. Made by the Roberts & Mander Stove Co., Philadelphia, Pa.



Two styles of the combination range manufactured by Smith & Anthony, Boston, Mass.



The Barstow Stove Company's Ranges, made at
their works in Providence, R. I.



Manufactured by the Bucks Stove-Range Co.,
St. Louis, Mo.

to get down on one's hands and knees to see if the burners are lighted. Don't select a range where you have to stoop over constantly in baking and broiling.

(7) See that there is some provision made for connecting the gas oven and broiler to smoke flue for ventilation. This is very important.

(8) See that the burners can be quickly and easily removed for cleaning. Many ovens and broilers are made so they can be dismantled without removing any bolts.

(9) Adjustable gas cocks are more of an advantage than the non-adjustable, as they can be adjusted exactly to suit the pressure, and thus attain the greatest economy.

(10) Carefully note how the oven burners are lighted. Sometimes, either through ignorance or carelessness, the oven becomes filled with gas, which is apt to cause a serious explosion. The better makes of ranges have some safety device for lighting ovens which removes any objection of this kind.

The manufacturers say that they believe this to be an answer to the demand that has been making itself felt for several years on the part of housewives who could not afford to run both a coal range and a gas range in the summer time and who yet did not want to dispense with either.

The same is true of the use of both kinds of range in the winter, for it often happens that one wants to use either gas or coal for some particular purpose. It is not always possible to have a kitchen large enough to accommodate two individual ranges even if the housewife were able to afford both and this combination, therefore, is not only a great convenience but also an economy.

The various manufacturers of these new ranges have been working faithfully for many years to perfect this arrangement and it is only recently that they could put the result of their labors before the public. It may be imagined that in order to perfect a combination whereby these two fuels might be used in one range without danger, was somewhat of a problem. It is for this reason that the above instructions or warnings have been tabulated, and the purchaser of these ranges should carefully follow them, for it is as with a refrigerator—the don't's count quite as much as anything else.

The directions for keeping them in good condition are supplied by the manufacturers in small booklets which they will very gladly give to anyone who writes for them.

The illustrations shown throughout this article represent the leading manufacturers of this new labor-saving and space-saving invention.



Electricity in the Household

Illustrated by Leading Manufacturers



WITH the development of electrical apparatus for household use, especially such devices as are now available for electric cooking and heating, the advantages of electricity are realized to-day in the well-equipped home—entirely apart from illumination, heretofore dominant in the popular mind.

The many devices which we illustrate have entirely passed out of the experimental stage and are practical not only in efficiency but with regard to the element of current cost, which has heretofore been a stumbling-block to the use of electricity in domestic economy. While it is almost impossible to accurately define the cost of operating electric heating apparatus, since there are so many variables, it is nevertheless true that—if the standard devices shown are used with judgment—electric heat may usually be applied so that nearly if not quite all of the heat generated is utilized in the work being done, and consequently the cost will be about the same as in other methods of cooking.

While the cost for current varies with the locality, the majority of lighting companies are alive to the fact that many of the electric cooking and heating devices are practical necessities in every well-appointed household and usually fix a moderate charge, and where all cooking is done by electricity a reasonable special rate.

After the wiring is installed—or rather while it is in process of installation—is the time to be sure one has sufficient outlets for the various uses to which electricity is to be put for the comfort, convenience and decoration of the household. Plenty of outlets, even if they are not to be made use of at the time of turning on the electricity, will provide for the possible use of many devices which one will find absolutely necessary to happiness before many more months have passed, so substantial is the progress electrical devices are making each day.

It is no longer necessary to tear walls and ceilings down, to take up carpets and hardwood floors, and to turn the household upside down with hubbub and litter in order to introduce the wires. A clever process is employed in place of the old method, that of “fishing.” The clever electrician “fishes” the wires up and down through the walls and in and out under floors, with no cutting of walls except where covered by fixtures, and with no taking up of floors except in attic and closet.

Like all good servants, electricity can “turn its hand to anything.” In the kitchen for all cooking or supplying hot water by the circulation water heater; in the butler’s pantry for keeping meats and plates warm with the portable warmer or the built-in hot closet; in the dining or breakfast room for the individual chafing



Mission chafing dish.

dish, coffee urn, tea kettle or dining-room set, toaster and waffle iron; in the bathroom, bed or dressing room, the water cup for the morning shave, the curling-iron heater and of course the electric fan in all of these rooms; again in the bedrooms the heating pad (which never cools off and cannot leak) for warmth and comfort, or in case of illness as a remedial agent, and the electric iron for pressing out the many little things that require attention.

In the nursery the Electric Milk Warmer evenly and uniformly warms baby's milk to the desired temperature—the same for all feedings at the turn of the switch—not heated unevenly, coolest at top and hottest at the bottom, as is the case where heat is applied to the bottom of the container. In the laundry for ironing, washing, drying, and in fact every operation that belongs to this department of the household electricity does the work swiftly, silently and sanitarily.

Of course the whole house may be heated by electricity through a system of radiators, but this is hardly commercially practical now. Where the operating cost is too high for continuous service—under most conditions, for occasional demand the electric radiator is economical and supplies heat in an ideal manner, especially in the chilly days of late Fall or the first cool days of Spring, when it is not cold enough for the stationary winter heat supply, but still chilly and damp enough to make the bath, dressing and living rooms uncomfortable. During the early morning or late evening hours the electric radiator is just the thing to meet these conditions and in the open fireplace makes quite an acceptable substitute for the old-time log fire—when fitted with luminous tubes. During the Spring and



Electric stove at the breakfast table.



Sauté pan.



Coffee percolator.



The electric chafing dish for a quick, light repast.



Afternoon tea—just turn the switch.



In illness the heating pad kept hot by electricity.



The electric range.



Electric toaster.



A group of electric utensils.



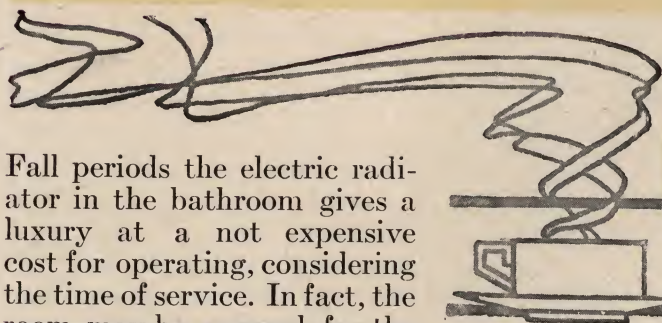
Milk bottle warmer.



Double boiler.



Attachment plug made by the Benjamin Electric Co., Chicago.



Fall periods the electric radiator in the bathroom gives a luxury at a not expensive cost for operating, considering the time of service. In fact, the room may be warmed for the morning bath at a cost which should not exceed 10 or 15 cents. Extending its field of usefulness, a small electric radiator in the garage placed on the floor beneath the engine will prevent freezing in the coldest weather. Then again, the electric radiator is made in so many convenient forms that practically every window seat, nook or corner in the hall may be provided with a suitable radiator.

In the dining-room the hostess may make her coffee in a percolator or pot by simply attaching the cord and plug provided to the lamp socket. For afternoon tea there is the electric tea kettle and for the light luncheon or after theatre "snack" the invaluable chafing dish, which when operated by electricity adds new interest and zest to the party. The ease and rapidity with which a light repast or even a fairly complete breakfast or luncheon may be prepared on the dining table is one of the most attractive advantages of the electrically equipped dining-room. Illustrations show several dainty coffee percolators, toasters, chafing dishes, etc., and it will be noticed that these devices all show artistic design as a mark of further development in electric appliances. Cereals, eggs, toast, hot rolls, tea, coffee, etc., are all practical possibilities on the breakfast table as well as the more substantial dishes of creamed beef, fish, chops broiled in the blazer, sauté potatoes, etc., all cooked without the accompanying annoyance of smoke and odor, and the line seems to be expanding.



An electric laundry.

In addition to the development of electric appliances for preparation of food and the comfort of the home, the use of electricity in decorating provides for the elaborate luncheon or formal dinner, cunningly devised center-pieces representing baskets of flowers or fruit or wreaths and trailing vines, flower laden, each reproduced in natural colors and glowing with tiny concealed lights,

which produce very attractive effects, especially at Christmas for lighting the tree.

In considering the advantages of electricity from the standpoint of practical necessity, the laundry and kitchen are the departments of the household in which it plays the most important part, reducing the work in these vital departments to a minimum, while increasing the efficiency of the service staff in proportion to the absence of unhygienic and uncomfortable working conditions. In the laundry the electric washing machine, which washes, wrings and does everything but hang out the clothes—the electric drier, which turns out the clothes ready for the iron, are all operated by simply attaching the plug and cord to the switch—the silent servant of the household does the rest. The refinements of the electric iron, such as the cord suspension arm and the automatic stand, reduce the operating cost to a minimum so that the ordinary family laundry may be ironed for as little as



Ironing by electricity.



Electric curling tongs.

25 cents a week. Again, the possibilities of comfort such as ironing on the back porch in hot weather or in the kitchen on the hottest day without increase in the atmospheric temperature reduce the problem of domestic service by an appreciable degree.

Clothes may also be dried on the electrical drier, which is a great boon in large families all the year round, and in small families in rainy and in winter weather when the drying out of doors is a difficult piece of work. Electric smoothing irons are now such a fixture in most households where electricity is in use that they need very little introduction. There is no comparison between the speed and the safety of their use, with the old-fashioned irons. An even heat



Portable radiator.



Curling iron.



The electric toaster at the breakfast table.



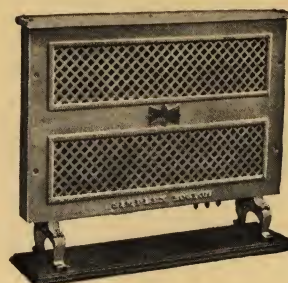
Plate warmer.



"American" Electric Upright Toaster, made by the American Electrical Heater Company, Detroit, Michigan.



"American Beauty" Electric Iron, made by the American Electrical Heater Company, Detroit, Michigan.



Electric radiator.

is maintained, with no changing of irons unless a different size, shape or weight is desired. There are so many good makes on the market, each with its own claim to special service, that it is merely a matter of personal selection. The only necessary fixture is a long flexible cord. For the use of the traveler, or of the dweller in an apartment or rooms where there is no place to heat an ordinary iron, the electric iron is a great convenience.

Again, in the kitchen, electricity gives the mistress and servants alike domestic comfort which goes far to lighten the drudgery of household work. The electric range does the work without changing the temperature of the room; is always under control and in every one of its applications is efficient, convenient



Electric oven and dish warmer.



A broiler.



Egg boiler.



Electric toaster.



An electric range.



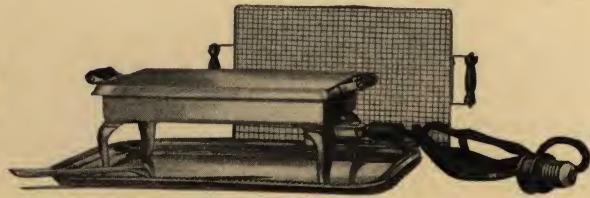
Electric Tea Samovar. Brews delightful tea right on the dining-room table. No smoke or flame.



Nursery Milk Warmer. Heats the baby's food to the proper temperature in four minutes.



Electric Frying Pan. The most convenient cooking utensil any woman can own.



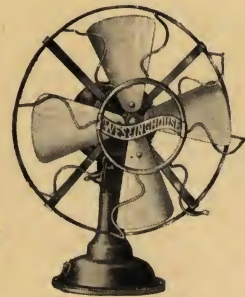
Electric Toaster-Stove. A perfect and practical table stove. Broils, fries, boils, and toasts.



Electric Coffee Percolator. Makes the most delicious coffee.



Electric Chafing Dish. Electrical operation adds the one necessary feature to the chafing dish—freedom from danger.



Electric Fan. Household size. Runs for one cent a day.



Small Power Motor. Will run any machine in the house.



Sewing Machine Motor. The motor does all the work and makes sewing a pleasure.



General Utility Motor. Has a dozen different uses in the home.

WESTINGHOUSE ELECTRIC HOUSEHOLD DEVICES

and safe. While it is necessary to have a low rate where *all* cooking is done by electricity, say 5 cents per kilowatt hour (and this can be done under favorable conditions at even less), summer cooking and most of the meals can be cooked at a much higher rate without excessive cost.

The electric range brings together in convenient form all the necessary appliances for cooking by electricity. It has an oven, a broiler, a toaster, three or four separate heaters with the proper cooking utensils for them, including double boilers, blazers, vegetable or meat boilers and tea kettles. Any of the utensils can be used separately and are always ready at the turn of switch. Should all the appliances be in operation at one time, the electric heat is so closely confined that it will not appreciably affect the temperature of a very small room. Switches mounted on the front of the range control each piece of apparatus so that each can be run separate or all together.

One of the most important features of the electric range is the clamping device which locks the utensils firmly to the heater by a slight turn so that none of the heat is lost through poor contact. Another feature of the electric range is the adaptability of the heaters for many uses, such as making toast, keeping plates warm, etc. The three-heat control, giving current at full, medium or low heat, is an especially desirable and economical feature. In fact, in the hands of a competent cook the saving by the proper use of this control will very materially decrease the cost of operation, since in many cases a very little current will perform the same amount of work while careless or incompetent use might waste twice or three times as much to achieve the same results.

With the modern trend of living in the department house on the increase, one of the hardest problems of housekeeping is solved with the electric range. When used as an auxiliary to any other method of supplying heat for cooking purposes, the number and variety of electric appliances is almost unlimited and cover practically every need in the kitchen. Small ovens, griddles, broilers, food warmers, waffle irons, tea kettles, and where a larger supply of toast is required than can be conveniently made on the table with the breakfast-room toaster, the hotel toaster (which combines the work of a toaster and griddle)—are all satisfactory. The combination sauté pans, blazers and cereal cookers may be used either in the kitchen or on the serving table. The illustrations show the range complete, while the smaller cuts show a number of articles that may be used separately.

A dishwashing machine for use in the home where there is no maid is an especial boon; for what woman likes to have unsightly hands which follow from the continual use of water, and what man likes to be forced to look at hands in such a condition, when he knows they are really soft and white? This interesting machine produces its own boiling hot water, and washes and rinses with such assiduous care that the most particular housekeeper is charmed with the result. The hot water also dries the dishes, and there is no rubbing to be done, save perhaps an extra polish for the glasses.

Of all the devices for boudoir or dressing-room which can be operated by electricity, the electric curling-iron heater, attachable to the nearest lamp socket, is one of the most important adjuncts to feminine comfort. To the woman traveler the electric curling-iron heater is most important, and in any electric lighted home it is a necessity. There are fixtures in the rooms of the greatest hotels in this country as well as the more important steamship lines and all Pullman cars. The electric curling iron may be portable for the dressing table, or as are frequently installed in private residences as a wall fixture in the bed or dressing room operated automatically without waste and with the use of very little current.

Electric hair driers and massage brushes are part of the equipment *de toilette* for the comfort of the modern woman. With the electric smoothing iron in different sizes from the three pound traveler's iron upward, small things, such as

laces, jabots, shirt waists, as well as skirts and jackets, may be pressed without invading the precincts of the kitchen or laundry. These same irons may be slipped into the suit case or trunk and are of great convenience in removing the wrinkles and creases incident to travel. As almost every hotel is now equipped with electricity, it takes only a few moments to freshen shirt waists and dresses after being taken from trunks.

How to Get the Full Advantage from Electric Light in the Home

BY G. E. PALMER

Illustrated by the Hart Manufacturing Co.



THE candle, oil lamp, gas jet and electric light all have certain advantages and disadvantages for use in the home, and each may serve a particular purpose better than the others. A candle or oil lamp is easily carried about, and adds coziness to the home, especially when fitted with a pretty shade; the gas jet is serviceable in many ways; but when it comes to the general illumination of the house, the electric lamp has one distinguishing advantage: you do not have to get at the lamp itself in order to light or extinguish it. You can turn on a light in the attic by a mere press of a button while sitting in your parlor, or you may light up all the passage-ways throughout the entire house by a similar touch of the button at the front entrance. It is this great convenience that has given the electric light the preference over all other illuminants in this country, even where its use is more expensive.

This convenience of distance control, however, is seldom utilized to anything like its full extent. Unfortunately, the laying out of the lighting of a residence or other building is very commonly left to the last thing, and then taken up hurriedly as an unimportant detail. Gas or electric outlets are located here and there, more or less at random, and a few wall switches put in, often in places that are inaccessible when the room is furnished.

In the first place, the placing of the outlets for electric lamps should be very carefully considered. An outlet costs but little when the building is being put up, but is an expensive thing to put in after the work has been finished. It costs nothing to have a lamp in place, and the convenience of using it perhaps only a few times a year will amply repay the slight additional cost.

Besides outlets for lamps there should also be a liberal supply of receptacles for attaching flexible cords for portable lamps and other electric devices. Nothing is more awkward than to see a cord dangling from a chandelier or side bracket. There should be at least one, and preferably two or three such outlets in every bedroom, so that an electric fan or heating device can be attached at any time. These things are not only inexpensive luxuries in the way of comfort, but in case of sickness may be of almost vital consequence.

When all the necessary outlets for the regular lighting and the plug receptacles have been provided, the next thing is to carefully study out a plan of switch control. A very convenient scheme is to arrange all of the halls and stairways on one circuit with switches for its control at convenient points on all floors, *i.e.*, so that by operating the switch on any floor the lights in all of the hallways can be turned on or off. It may be well to locate a controlling switch of this kind near the bed of the master of the house, so that in case of any suspicions that the house has been entered by burglars the halls can be at once lighted up without exposing its inhabitants to danger.

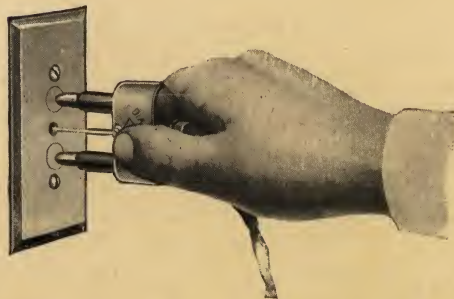
All of the principal rooms should be provided with wall switches, which are prefer-

ably placed at the side of the entrance door. Reaching up to the chandelier to turn a lamp on or off is wholly needless, and an evidence of out-of-date methods of electric wiring.

All closets should be provided with electric lamps on the ceiling controlled by a switch which turns the lamp on when the door is opened and shuts it off when the door is closed. This avoids fumbling about in the dark, or the dangerous practice of striking a match or using a lighted candle.

Like other apparatus, electric switches differ in quality; they are not exempt from the temptation to cheapen their construction in order to increase the profit of the maker or seller. Although seemingly a small matter, a poorly made switch may become a decided annoyance by faulty operation, or an expense by re-

SWITCHES, PLATES AND RECEPTACLES,
MADE BY THE HART MANUFACTURING CO., HARTFORD, CONN.



Receptacles may be operated with one hand. The shutters automatically open when plug is inserted.



This shows the completed connection.



Flush switch with plate removed.

quiring replacement, or a possible source of fire by partially failing to operate. A switch should be of standard make of known reliability that can reasonably be expected to last as long as the building in which it is to be located.

It is unsafe to leave the location and arrangement of the switches to the architect or electrician without going over the matter before construction is begun. There are so many details in the planning of a house that this one may be slighted unintentionally. The architect, of course, will be glad to specify any arrangement you desire, and will tell you how to secure the arrangements you want. The point is, not to let this item slip by without giving it due attention, as an electric switch properly placed will save many steps.



Telephone Systems for the Home



NE would no sooner think of doing without a telephone in these days of modern expedients than without a heating system. There is probably no single form of modern convenience that has

become as much of a necessity as has telephone communication between the home and the outer world. In city, town, suburb, village and the open country, communication by telephone once established in a neighborhood quickly attests its claims to convenience and necessity and even the most skeptical are ready

converts, after a short introduction to its wonders—for wonders they are even to those who are constantly in touch with the telephone.

The most recent extension of the telephone to household use is the Inter-phone system which provides for communication between the different floors and the different rooms, on a simple and feasible plan which brings every room in the house, if desired, in touch with a central point or with every other room at a moment's notice. Every progressive housekeeper fortunate enough to be able to afford a telephone, by which she may communicate with the tradespeople at any minute, realizes what a blessing this servant of electricity has become to mankind. In cases of illness, in troubles of any kind, aid and friends are so easily summoned that fear seems almost a thing of the past. What telephone communication with the outside world is to the house, so is the Inter-phone system to the members of the household and to the proper, economical and comfortable running of a home.

Business men see readily the advantage of the intercommunicating system for the office or factory, and every householder and housekeeper can appreciate the comforts and advantages of the same system in the home. Every modern up-to-date residence will soon be provided with a system of Inter-phones, which will not only do away with the necessity of the unsanitary speaking tubes and the inadequate call buttons, but will also save valuable time in the conduct of the household. The old-fashioned speaking tube is a breeding place for germs, is inconvenient, and provides only communication with one place, while the Inter-phone may be arranged to connect one room with any other. The call button, which has heretofore served to summon a servant, wastes time and strength, for with the aid of an Inter-phone the mistress may speak with the cook without summoning her away from important work in the kitchen. Often the maid will be in her room when you wish her services, or to give an order. If an Inter-phone system is installed the communication may be had at once. An intercommunicating telephone system is an excellent fire alarm too, which may be quickly rung in each room without traversing halls and stairs and wasting valuable time. In a household where no servant is kept, or where there is only one, it would be well to have a sta-



This is a practical demonstration of one of the important uses of the Inter-phone system in the home. It means that no matter where the housewife is she can immediately communicate her wishes and orders to any other part of the house or to the stable or garage. Much time and annoyance are saved by this simple device which means the control of the house from boudoir or drawing-room. A full description of the many advantages of this Inter-phone system will be found in the accompanying article and the page of illustrations showing the different types of Inter-phones will be found useful to those wishing to install such a system.



WESTERN-ELECTRIC INTER-PHONES.



No. 1325.—Type Inter-phone Semi-flush Metal Wall Set. Selective ringing and talking. Capacity 6 to 12 stations.



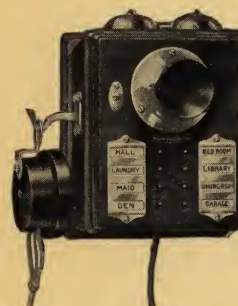
No. 1324.—Type Inter-phone Non-Flush Metal Wall Set. Selective ringing and talking. Capacity 6 to 12 stations.



No. 6016.—Type Inter-phone Metal Desk Set. Selective ringing and talking. Capacity 6 to 24 stations.



No. 1327-A.—Type Inter-phone Code Ringing, Common Talking. Capacity 2 to 6 stations.



No. 1327-M.—Type Inter-phone Selective Ringing, Common Talking. Capacity 3 to 9 stations.

SOME REPRESENTATIVE TYPES
OF WESTERN-ELECTRIC INTER-PHONES.

tion installed in every hallway and also at the back door, so that tradesmen may be interviewed without the wasted time and energy of going down the stairs in the middle of important upstairs work. An Inter-phone at the back door will also prove a great convenience on that ban of all housekeeping—"Thursdays out."

An intercommunicating system may be small or large, as desired. There may be only two rooms connected or there may be twenty-four. A simple system arranged to accommodate as many as six stations located in different rooms of the house or in outbuildings nearby may be put in, it is claimed, at an average cost of approximately \$7.00 per station. Inter-phones are purchased and owned outright, just the same as the lighting fixtures and plumbing fixtures. There is no monthly bill to be paid, no annual bill, no further expense save for the renewal of batteries which, it is said, amounts to little more than keeping a door bell in order.

The "furniture" of the telephone may be secured to match any desired wood and therefore be in harmony with the other furnishings or the finishings of the room. It is customary to have the Inter-phones finished to correspond with the finish of the hardware. They are no longer the inartistic clumsy boxes of the earlier days of the telephone, but are now a distinct addition to the most perfectly arranged interior. It is possible to have them made in all kinds of wood and with silver mountings if desired. The intercommunicating telephones may be either convenient desk or table phones, or wall boxes, as desired. To install the system is a simple matter, but if the householder desires the best results it is advisable to have a regular electrician do the wiring.

An Inter-phone system is always on duty—no operator required, as every station is a complete switchboard—just push the button of the station desired—and talk.



The Many Uses of Gas

By F. P. KELSEY

Illustrated by Leading Manufacturers



LET us understand at the start that the use of all the gas appliances illustrated in this article is absolutely practical. They are not toys or luxuries.

As the key to comfort and happiness in the home, we start with the kitchen.

The large number of kitchens with which a gas company has to do gives it a great deal of experience as to the best arrangement to effect economy and convenience.

The recent tendency of architects in designing first-class homes has been toward the buffet kitchen of compact design, the idea being to save steps in work. Now, this is all very well if the desired appliances can be accommodated. Gas companies have found, however, that, perhaps due to their own neglect, not enough room has been specified for the newer labor-saving gas ranges that the public is now demanding. I have reference to what is known as the cabinet gas range, with ovens on the side. The position of the ovens makes it possible for the housewife, or the cook, to carry on every cooking operation while standing erect, naturally and comfortably, instead of stooping.

Now, it is not necessary for a kitchen to be large to accommodate this and other labor-saving appliances, but it is reasonable for people to demand from their architects an arrangement which will permit them to receive the best service for the money they expend. The tendency is more and more toward the "All Gas Kitchen." The demand, therefore, is not for space to accommodate both the gas range and the coal range, but for suitable room for the most desirable appliances. The cost of gas, the constant trend of which is downward, has reached the point where it is most economical for one to do all her cooking with this fuel, not to mention its convenience, cleanliness, exact adjustment of heat values, and so on.

The average size cabinet gas range requires not less than 58 inches clearance for an installation. A space should be left of at least this width convenient to the flue, and a proper light should be provided in all cases.

One of the illustrations accompanying this article gives a view of a kitchen which we believe to be ideal in proportion and arrangement. The very latest model of a gas range is illustrated. It is placed at the east end of the kitchen, whose greatest length is east and west. On the north side of the room is a glass-topped working table. Beneath the table top to one side is a tier of drawers. There is a good-sized window to the north, and a window to the west, as shown in the illustration. To the left of the table is a China cabinet, with leaded glass doors and a wealth of drawers in the lower section. In the southwest corner



A kitchen in gas. The range is the "Stewart" made by the Fuller-Warren Co., Milwaukee, Wis.



is the sink, the whole top, including the drain board, being a single piece of marble. To the left of this is a light work table, covered with spotless white oilcloth. The side walls are covered with Sanitas oilcloth, in Delft blue and white, and the ceiling is in plain white of the same material. Blue and white linoleum covers the floor. Cabinet and work tables are also in white enamel, as is the woodwork of the entire kitchen. I might mention also that the door panels in the gas range are white enamel.

Perfect illumination is afforded by a Reflex inverted Welsbach lamp hung from a pendant in the middle of the kitchen, and equipped with a Holophane shade. A similar lamp hung from a simple bracket over the sink, and a like one by the stove give perfect light for localized operations. A chain pull on these lamps makes matches unnecessary.

Just as important as her kitchen furnishings, in the mind of the modern housewife, is the equipment of her laundry. Numbers 3 and 4 illustrate the equipment in a very complete domestic laundry, in Milwaukee. On the right of Number 1 is shown a gas-fired steam generator, which furnishes steam for the rotary tub illustrated in the same cut, as well as for other laundry purposes.

Cut No. 3 shows the mangle and hand ironing board, where the irons are



(1) Washing by Gas

heated by gas; and the stationary wash tub to which hot water is supplied through an automatic instantaneous gas water heater.

Cut No. 2 shows another domestic laundry, including a laundry dryer, gas boiling stove and a gas mangle.

An appliance not shown in this well-regulated laundry, although having a close relation to it, (being placed in the basement) is the automatic instantaneous gas

water heater, which furnishes hot water in any part of the house, at the turn of the faucet—see next page.

A person who is familiar with the working of this appliance, making use of the simple statement given above, does not realize how wonderful seems its operation to one witnessing it for the first time.

Imagine the astonishment of the novice to see a gas flame suddenly light when a faucet is turned, and when the flow of water is cut off by the faucet, to see the flame as suddenly vanish. He opens his eyes in astonishment, and then says: "Do you mean to say that that gas flame is controlled by the flow of water?" "Exactly that and more," is the reply. "The minute you turn on the faucet, you begin to get hot water; hot, mind you, not lukewarm—and when you turn off the faucet you cut off the supply and also cut off your consumption of gas."



(2) Drying by Gas



(3) Ironing by Gas

Nearly every home has experienced sudden sickness at night, or other happenings which necessitated hot water. With the appliances ordinarily available, one finds it necessary to resort to the teakettle for water of the required temperature. The automatic instantaneous water heater solves this problem simply and effectively.

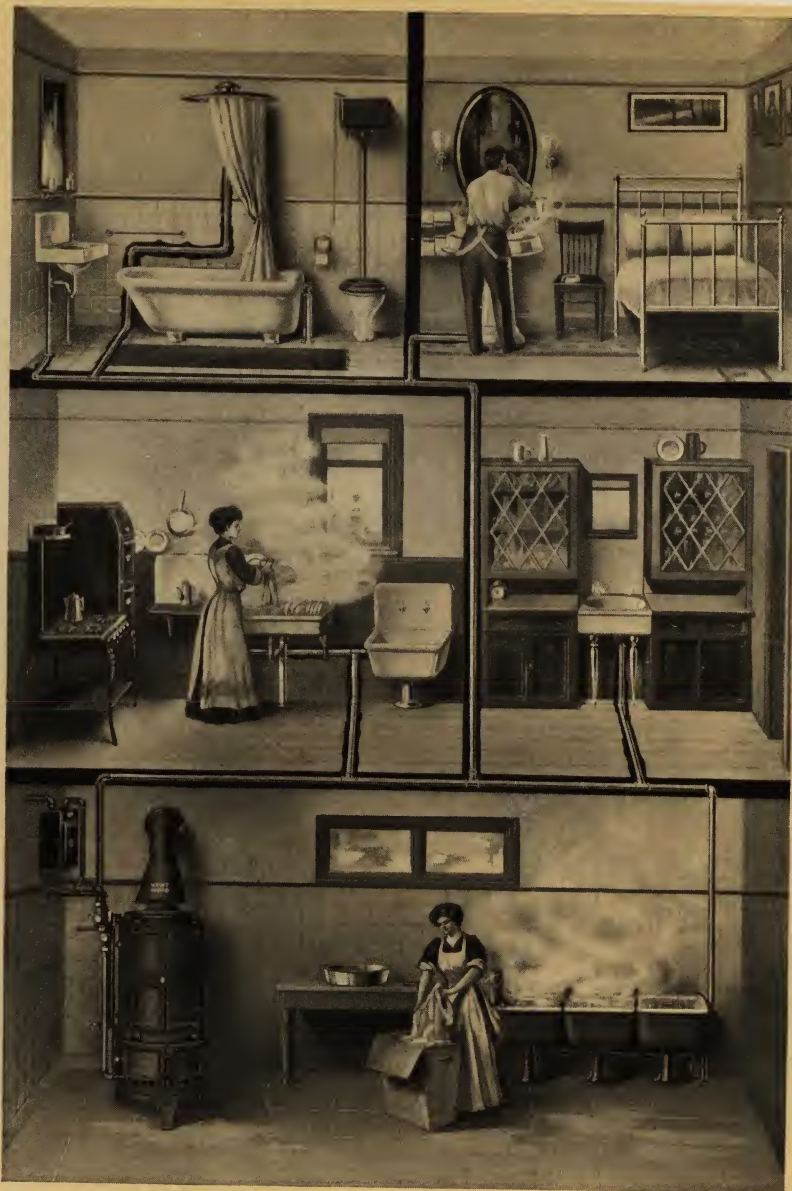
Where the housewife does not wish to stand the initial expense of a water heater of the automatic instantaneous type, the circulating water heater, which may be installed for \$15 and \$20 complete, with vent pipe and connections to boiler, may be placed in the kitchen with most satisfactory results.

The beauty of using gas for household purposes, is that the housewife not only gains the maximum of convenience, but the minimum of expenditure for the resulting comforts.

For instance, the gas iron, suited to the normal, domestic need consumes less than one cent's worth of gas an hour. The iron is always hot, and always there, without being lifted. The treatment that dainty lingerie gets from the gas iron is eminently satisfactory.

Then there are any number of small appliances made especially for economical use on the gas range. There is the gas waffle iron, made to fit over the gas range burner, which turns out the most delicious waffles. Then there are the griddle cake baker, bread toaster and sad iron heater. There is the nursery burner, which can be slipped on any gas fixture in a bathroom or bedroom for heating milk for the baby at night.

And nowhere is the convenience of gas more strikingly illustrated than in the little refinements in



The gas water heater means hot water instantly and continuously throughout the house. This one is made by the Humphrey Co., Kalamazoo, Mich.



the home. Its immediate availability, cleanliness and steadiness of supply, make it particularly attractive to "my lady" in evening gown, for her percolator or chafing dish, after the theatre.

The little urn burner illustrated solves a problem which has long been a puzzle to her, and that, too, at a cost which causes no worry when the bills come in.

Gas mantle lamps, at a minimum cost, give an excellent quality of light at a reasonable rate. The problem in the gas lighted home heretofore, has been to get artistic effects with convenience of operation. The inverted gas lamp, combined with instantaneous lighting has solved this problem.

Manufacturers of fixtures and artistic glassware have come to realize the possibilities of the single



Ironing by gas is much easier and cooler than the old way.



A coffee percolator operated by gas.

mantle inverted gas lamp and have striven to out-do each other in the attainment of artistic effects. The result has been highly gratifying. A great variety of effects have been produced, and three methods of instantaneous lighting perfected.

The three methods mentioned are as follows:

1. By the new pneumatic system, artistically equipped lamps on the latest type of gas fixture may be lighted and extinguished from several different places by the simple touch of a button. An airtight line of flexible tubing about a sixteenth of an inch in diameter connects the pump, which is operated by this button, to the lighter or to a group of lighters attached to the gas lamps. The pressure is transmitted pneumatically to the lighter and operates a gas cock, in the shape

of a piston valve. When the flow of gas is released a tiny pilot light inside the mantle ignites it.

2. Electric ignition to take the place of the pilot light, is accomplished from a small dry battery in the centre of the fixture, and bids fair to be in general use shortly.

3. The Chain-Pull—By pulling a chain suspended from a fixture, the flow of gas is released in one or more lamps on a fixture, and ignition takes place from a small pilot light burning in each.

Perhaps in no other room in the house has efficient and artistic gas lighting been more highly developed than in the dining-room.

One of the most recent combinations has been the inverted dome which consists of a single inverted Reflex gas lamp surrounded by an art glass bowl or dome, which softens and diffuses the light and casts a general glow over the dining-room, of sufficient intensity, however, to afford perfect illumination. Then there are the upright domes in widely varying effects and in a wide range of prices.

The inverted gas lamp lends itself in a particularly happy manner to the dressing of brackets.

We have illustrated the latest appliances for gas in this article. One can see them in actual operation at the office of the local gas company in the large cities.

Acetylene—Artificial Sunlight—in the Home

By HENRY R. BERNARD



FOR ages the human race struggled against darkness, and its efforts to prolong the day by means of artificial light endured, unrewarded by any decisive victory, until modern times.

History gives no record of the transition from the torch of resinous wood, which lessened for primitive man the gloom of cave or forest, to the beautiful bronze lamp fed by grease or oil. It does, however, furnish us with ample evidence of the later efforts toward production of better light—from the tallow candle to the Tungsten electric lamp—but a recent achievement was the production artificially of actual sunlight—for such Acetylene light seems.

Not only is Acetylene thought to give the finest quality of light known to science, but it is a most sanitary light, because the consumption of Oxygen, taken from the air of the room lighted by it, is less than that of any other exposed illuminant. Acetylene is also proven by insurance statistics to be as safe as any other illuminant. It is not poisonous, and therefore cannot asphyxiate. It burns with a clear, white, steady flame—without the slightest odor, and needs neither mantles nor chimneys.

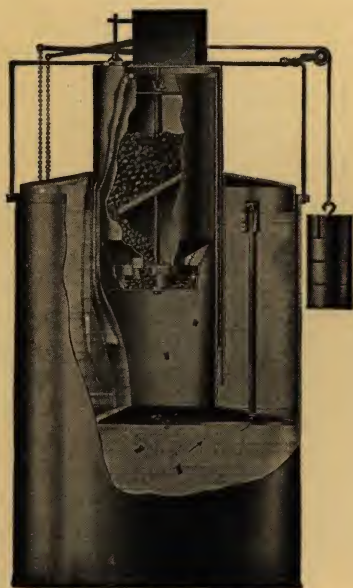
On account of the small amount passing through a Standard Burner it would take about a week for enough to escape from an open burner into an ordinary sized room to form an explosive mixture of the air.

Cleanliness is another important feature of Acetylene, and it is said that mural decorations, draperies, etc., do not suffer in rooms where it is used.

A very important finishing touch in all home building and one which is often overlooked, is the selection of a proper illuminant. Whatever skill and care are exercised in the selection of color tones in decoration and furnishing by daylight counts for little if the effect is destroyed by a poor quality of light in the evening. It is interesting to note the effect of acetylene light upon color values. It seems to bring them out intensely and sharply and its effect would scarcely be credited by anyone who had not actually observed it.

The foregoing remarks on the benefit and virtues of Acetylene as an illuminant must not be taken as an over-emphatic recommendation. The points we have made have been emphasized particularly because it is something so new as compared with the well-known properties of electricity, gas, oil, etc., that it must be very clearly explained in order to give it a fair place among the modern illuminants for the home. To those, therefore, appreciating, and desiring to secure, the many and important advantages of up-to-date illumination, the brilliant acetylene light will appeal strongly. First—on account of its Quality, which is conceded to be superior to that of any other artificial illuminant; Second—because of its comparative Cheapness; Third—because of its demonstrated Safety; and Fourth—because of the ease with which it can be automatically produced in any home, no matter where located.

Acetylene is a gas made by bringing together calcium carbide (commonly called "Carbide") and water. Carbide is simply lime and coke melted together



Interior View of Davis Acetylene Generator, made by the Davis Acetylene Co., Elkhart, Ind.



Exterior View of Davis Acetylene Generator.



at about 6,000° F. It resembles little pebbles, and is quite as harmless to handle. It will keep in any climate.

In order to bring the carbide in contact with water, safely and automatically, small machines have been invented called Acetylene Generators. These machines are about the size of a kitchen range, and those that have been examined, by the consulting engineers of the National Board of Fire Underwriters, are permitted to be installed in the basement of the house without increase in rate of insurance. This rule applies generally throughout the United States.

The cost of Acetylene depends on the price of carbide, which can be obtained at established depots at convenient points all over the United States. At most depots the price is \$3.75 per hundred-pound can. An idea of the cost of Acetylene can best be obtained by comparison with the cost of other illuminants, in the following table:—

ELECTRICITY

(Using 16-candle-power Lamps)

At 10 cents per kw. \$1.00 gives approximately	2,857 c.p.
At 12 cents per kw. \$1.00 gives approximately	2,286 c.p.
At 15 cents per kw. \$1.00 gives approximately	1,905 c.p.

COAL GAS OR WATER GAS

At a dollar per thousand cubic feet \$1.00 gives approximately	4,000 c.p.
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ACETYLENE GAS

At 4 cents per pound for Carbide \$1.00 gives approximately	6,000 c.p.
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From the above, it will readily be observed that the cost of Acetylene compares favorably with that of other illuminants, and if the labor, cost of wicks, chimneys, etc., in the kerosene lamp are taken into consideration, Acetylene will also be found to compare favorably with the cost of kerosene for lighting.

As the principal part of an Acetylene installation is the generator, it would be well to observe certain points in the selection of a proper generator, as there are, unfortunately, many inferior generators offered for sale whose only attraction is apparent low price. It is very easy, however, to distinguish a generator that is absolutely safe and economical: First—the Indirect system of “feeding” or dropping the carbide should be demanded for safety’s sake, because, by this system only is prevented an accidental over-discharge of carbide. The said system is distinguished from the Direct system in that it does not allow the carbide to drop directly from the “hopper” (carbide-container) into the water below. The accompanying illustration shows the Indirect system of feeding. It will be observed that the carbide is allowed to come down onto a plate or disc—the surface of which is parallel to that of the water below. The carbide is bound to remain on this plate, except as the little pickers, or “displacers” (shown), are made to revolve slowly, when only one lump of carbide at a time is dropped into the water below. The moment the carbide strikes the water it decomposes, leaving lime (“whitewash”) in the water, while the liberated acetylene gas rises into the “Bell” or gas reservoir, which floats in the water of the upper tank. Now, the rise and fall of the Bell, as the gas enters, or is taken out (by being consumed by the burners), operates the “feeding” or dropping device shown. It will, therefore, be seen that there is practically no gas in storage, and that it is automatically made only as it is consumed and in the exact proportion necessary to supply the number of lights actually burning. This is one of several good systems of Indirect “feeding.”

The Direct system of “feeding” or dropping the carbide allows the carbide to drop directly from the hopper (carbide-holder), into the water below, by the opening and closing of valves, doors, or gates, located in the bottom of the hopper, and operated by the rise and fall of the Bell or Gas Reservoir. It can be readily seen that should any of these devices become accidentally stuck and held open, the whole charge of carbide might run down into the water at one time—thus generating more gas than could escape from the blow-off pipe and probably damaging the generator. E. Leavenworth Elliott, author of the chapter on “Lighting Fixtures” in this book, and a recognized authority on Acetylene lighting, has already given his advice on the subject in “Country Life in America,” October, 1907. He says:—

“It is generally conceded that those generators which drop the carbide into the water, instead of the water upon the carbide, and that have what is known as the Indirect-Feed, are to be preferred.”

Particular mention is made of the “feeding” or dropping device because that is the “heart” of a generator—the most important part and yet the part that is more or less defective in most generators.

Second—the type of the generator which uses the lump carbide (large lumps about $\frac{1}{2}$ inch by $1\frac{1}{4}$ inch) should be selected in preference to the kind that uses the $\frac{1}{4}$ inch or smaller carbide, because the lump carbide costs no more than the smaller size and yet gives a greater yield of gas per pound, so that the lump-feed machine really makes the gas cheaper, and is therefore bound to be the cheapest generator in the long run. All standard makes of licensed generators are now made in the same sizes and sold at the same prices. The generator using the lump carbide gives 100 hours more lighting from each 100-pound can of carbide, without

one-cent additional cost. The National Board of Fire Underwriters have expressed themselves on this subject in their book of Rules and Regulations as follows:—

“Rule 5:—In determining charges, lump carbide must be estimated as capable of producing $4\frac{1}{2}$ cubic feet of gas to the pound; commercial $\frac{1}{4}$ -inch carbide 4 cubic feet of gas to the pound.”

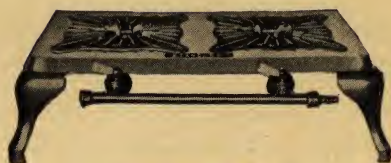
The principal carbide manufacturing company has expressed itself, before the International Acetylene Association, to the effect that there is a much larger yield of gas per pound from the lump size than from the $\frac{1}{4}$ -inch size carbide.

These are the principal requirements of a good generator, although there are a number of minor devices that appertain to convenience of installing, operating, etc. Beware, however, of the agent who exaggerates the importance of some minor parts, claiming advantages which either do not exist, or which, if they do exist, are comparatively unimportant.

Acetylene is not only used for lighting purposes, but it can also be used successfully and economically for cooking and for heating small rooms. Acetylene ranges and stoves of any size are to be had at a comparatively low cost. Owing to misapprehension, relative to the efficiency of Acetylene for cooking, the following



Acetylene Range.



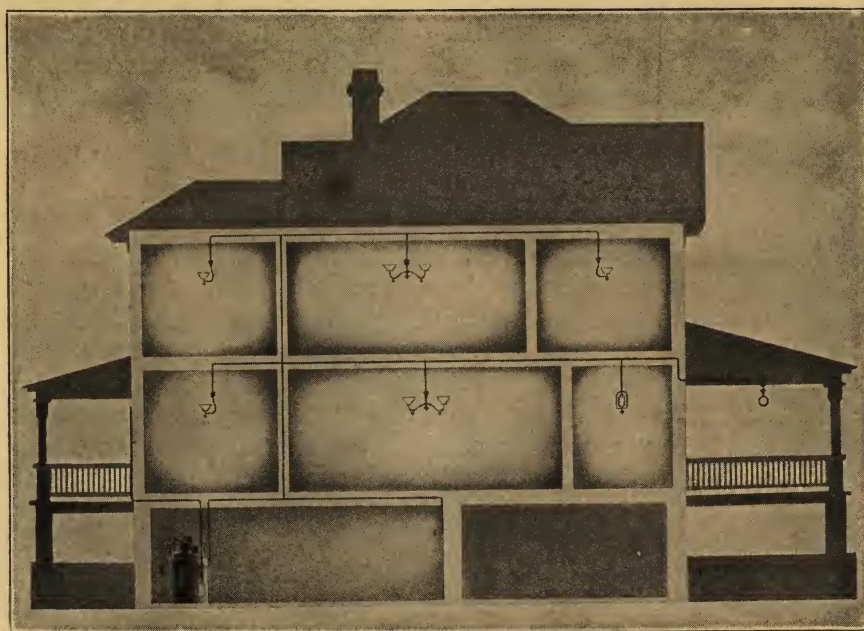
Acetylene Plate Warmer.



Acetylene Heater.

ACETYLENE APPLIANCES.





Sectional view of a residence showing simple method of concealing piping beneath the floors without disfiguring ceilings or walls. Piping may be put in with ease after building is completed, although it can be more readily placed while in course of construction. In this illustration the generator is shown in the cellar, where it is usually placed. However, it may be placed in any other convenient location.

results may be interesting, as they have been prepared by a leading Acetylene stove manufacturer from many tests:

Six eggs soft boiled, 1 pint cold water.....	4 minutes.
Tea Biscuits.....	7 "
One and one-half quarts of coffee from cold water.....	18 "
Baked custard, 1 quart.....	15 "
Fried Bacon.....	3 "
Eggs fried in hot bacon fat.....	1½ "
French fried potatoes, in hot bacon fat.....	6 "
Broiled bacon.....	5 "
Two pounds steak (thick).....	20 "

In order to obtain the heating qualities of Acetylene a Bunsen Burner is used, on the heating or cooking apparatus, which mixes air with the gas before it reaches the burner, and so produces a blue flame. Acetylene is known to be comparatively cool for illuminating purposes (only pure Acetylene being used), so that many people wonder how the gas can also be used for cooking—hence the above explanation. That Acetylene has very high caloric properties is evidenced from its use with oxygen in the oxy-acetylene welding process, in which approximately 6,000° F. is obtained.

The installation of an Acetylene generator is a very simple matter. If installed in the basement of the house, all that is necessary to be done is to connect the gas outlet with the service or house-pipes, and to extend the "blow-off" pipe out to the open air. The generator may also be installed outside of and at a distance from the residence if desired. In either case the installation can be attended to by any mechanic of average intelligence. The only object in installing

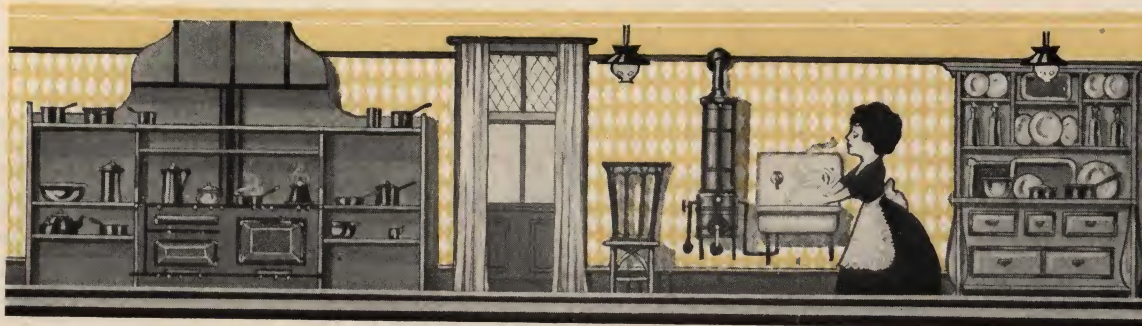
inside the house is to prevent the water in the tanks from freezing in the winter. Where generator must be installed outside and used all the year it must be placed in a frost-proof house. Plan for such a house may be obtained free from any generator manufacturer. Cost of erecting a frost-proof house is about \$60.00. Ordinary gas-pipes are used for Acetylene, the same as are used for city gas, and the ordinary styles of gas fixtures are used for Acetylene, except that the fixtures should be of a good quality with the joints very carefully ground, in order to prevent leakage of this very thin gas, which is both expensive and annoying. It is, therefore, advisable to purchase Acetylene fixtures from a dealer in Acetylene generators and supplies.

Special tips or burners are used with Acetylene. These are comparatively inexpensive, as they cost about \$3.00 per dozen in the best grade and in any size. The volume of light can be readily increased or diminished by changing the burners on the gas fixture. An Acetylene burner, consuming $\frac{1}{4}$ -foot of gas per hour, gives about 10-candle-power of light. The standard $\frac{1}{2}$ -foot size gives about 25-candle-power; $\frac{3}{4}$ -foot burner about 35-candle-power, and a 1-foot burner 48-candle-power. There are intermediate sizes and also some larger sizes for special lighting.

The operation of an Acetylene generator is very simple and can be attended to by a child. It is only necessary to put in the carbide—just as a scuttle of coal is put in a stove. Then the two tanks are filled with water, and the generator will make the gas without any further attention until the carbide becomes exhausted. A charge of carbide will last according to the gas consumed daily, but in a residence of average size it should last about three weeks. The process of cleaning and recharging is equally as simple. The residuum, or waste lime and water, is allowed to run out (into the sewer or cess-pool) from the lower tank. The tank is then refilled with water and the carbide chamber filled—that's all!

For a house of six rooms a generator of 25 pounds' capacity is sufficient, except it is desired to do cooking also, when a generator of 35 pounds' capacity would be preferable.

The cost of 25-pound standard licensed generator is \$120.00; of a 35-pound \$150.00, and a 50-pound \$175.00. Many larger sizes are made up to 10,000 lights capacity. The installing of a generator should cost about \$5.00. In case the house is not already piped, the labor and material for this work can be obtained from a local mechanic, at the rate of about \$2.50 per "outlet." By an outlet is meant the hole in the ceiling or wall through which the pipe passes to connect with the gas fixture in the room. Gas fixtures will cost, of course, according to the style and quality selected. An ordinary 25-pound (25-light) installation with generator, piping, gas fixtures, etc., should cost about \$160.00 or \$170.00, complete, all ready to touch a match to the burners. Stoves cost from \$3.75, in the 1-burner size, up to a large range of 4 burners and oven costing \$30.00.



Oil as a Factor in the Household

Its Uses for Cooking, Heating and Lighting

By R. W. ST. HILL

Illustrated by the Standard Oil Company, New York



Many advances have been made in recent years in the application of gas and electricity that oil naturally has been pushed into the background in communities where all the refinements of modern civilization are ready at the door. But for combined efficiency and convenience—and, it may be added, for economy—oil still maintains a position of its own. There are many homes beyond easy reach of gas-house or electric power-plant where oil is particularly serviceable, if not indispensable, and even in direct comparison with gas and electricity it offers certain advantages which the home-builder or housewife may well like to consider.

As a guide to what is needed to get the best results from oil and what description of stoves, heaters, and other oil-burning devices may be relied upon best to fill the necessary requirements, it may be enough here to say that, generally speaking, a blue flame gives the most *concentrated heat*; a white flame can be made to give either the most widely *radiated heat* or the most light, dependent on other governing conditions, while a red or yellow flame does not give much either of light or heat. Light and heat depend on the proper amount of air being directed to the flame in the proper way, and the best heating and light-giving oil devices are constructed on the centre-draft principle, because the supply of air is best regulated and directed by this means.

One of the great advantages possessed by oil is the independence it assures. Given your oil and the proper device for its use, you have nothing else to worry about. Further, an oil supply is easy to get and easy to handle.

And oil is safe. All oil that is to be used for ordinary domestic purposes has to conform, under recognized tests, to a fixed standard that is set at the mark of absolute safety.

Starting with the kitchen, we may note at the outset that, if oil is the fuel chosen here, we have, in the single supply, all the fuel needed to solve the lighting as well as the heating problem of the home. The next thing that strikes us is that we can put our oil stove where we like. We are not tied down to one corner every day and all the year around because of the pipe or flue connections. On wash-day our oil-stove can be moved close to the tubs for boiling the clothes, or it can be



A Kitchen in Oil.

placed conveniently to the ironing board so that hot irons always are within arm's reach.

The advantages of this portability are especially great in summer. You can place an oil stove near an open window and get fresh air on the hottest day. You can even move it out to a sheltered corner of the back porch and avoid the slightest tendency to heat up the house. All the best makes of oil stoves burn with a blue flame and this means a closely concentrated heat. The result of this blue flame is not only that all the heat is concentrated at the burners, where it does most good and gives the fullest value for the fuel consumed, but this heat does not spread through the room. The kitchen remains many degrees cooler than with any ordinary range, and this is an advantage that any woman who has had the family cooking to do during the hot summer months will readily appreciate.

In winter an oil stove works out advantageously in another way. You can move it out of the way of cold drafts, and, because it is smaller and lighter than ordinary ranges, you often find you can stow it away in an odd corner and so save space. Moreover, though it gives such an intense heat, an oil stove does not exhaust the oxygen in the air to any serious extent and thus, even though the win-



An Oil Water-heater.



A Portable Oil Heater is useful in a country home

dows are closed, the air in the kitchen where an oil stove is used remains pure and healthful.

Oil stoves have been brought to a degree of perfection now where they do almost everything that a range can do. There is no reason why an oil stove or an oil heater should smoke or smell. If it does, it simply means carelessness in the handling—which is simplicity itself—or inferior workmanship and construction in the particular model that has been selected. The best and most up-to-date stoves are made with one, two, or three burners, and, with all three burners going full strength, a single gallon of oil should last such a stove from seven to eight hours. These stoves are fitted with long, blue, enameled chimneys, the effect of which, apart from their attractive appearance, is to concentrate the heat still more closely on the bottoms of the saucepan or boiler. Special care has been bestowed on the ovens that go with these stoves. Both the large and small sizes have ventilating openings

which allow the entire volume of heated air delivered by the burners to pass freely through. Thus there is nothing to interrupt the constant supply of heat from the burner, and this freedom in the inflow greatly increases the heat in the oven. At the same time all the moisture and steam from the baking substance are carried quickly away and the oven is kept dry as well as hot. Such an oven is not a steamer, but a baker in the true sense of the word, and every practical housewife will be quick to appreciate how much this means. Bread or cake, because baked with a dry heat, have a crust of closer fibre, which retains the moisture in the loaf and keeps it fresh longer. These ovens also are made with glass doors—a clever and convenient arrangement that allows the housewife to observe the



An oil lamp is pleasant to read by.



The oil lantern is often a necessity.

progress of the baking without interrupting her other work to open the door and allow heat to escape.

The cabinet top of certain stoves is also a great convenience. There is a commodious top shelf on which plates and food can be kept warm, and towel racks at either end. A little lower there are two drop shelves for pots or pans. These can be folded back when not in use. Sadiron heaters are furnished with these stoves, consisting of iron plates fitting over the grates. While designed especially for sadiron heating, they are very valuable for all kinds of cooking where a well-distributed heat is desired—particularly when using vessels with a small base. There are also specially designed broilers and toasters particularly adapted for oil stoves, and these give excellent results in cooking.

There still remains much to be said as to their detailed advantages. One of the chief of these is the convenience and economy in actual operation, an advantage which it shares with oil heaters. Where oil is used as fuel, practically every unit of heat generated is put to direct use. There is no waste of fuel.

An oil-consuming device is giving full heat within a minute of the time it is lighted. The individual burners of the oil stove allow you to get the limit of heat just in one corner of the stove, over one hole, without consuming an ounce of fuel in the rest of the range.

With oil you can regulate the heat to a nicety—full strength of a mere streak of flame, exactly as desired—and any cook knows how greatly this absolute control over the heat helps her in her baking or broiling. You can stop the consumption of your oil, in an instant, by a turn of the fingers. The convenience and economy are equally noticeable when you get up in the morning. You have your oil stove ready for use in a minute. It has not been banked and burning all night, and it takes no time at all to be in its best working order.

The problems involved in lighting a house are discussed elsewhere in this book, and of the value of oil as an illuminant it is enough to say here that no light is more pleasing, more softly diffused, more easy to the eye, than that given by a well-constructed oil lamp. Opticians strongly recommend oil lamps where weak eyes are strained by the glare of sharper and stronger artificial lights, for the light from an oil lamp comes nearest to resembling the natural light of day than any other. At the dinner table nothing gives a prettier light—becoming to those who sit around it and enhancing the effect of dainty appointments—than tastefully shaded candles.

Something should be said here, however, as to the cleanliness of oil, not merely as saving trouble and work, but in adding to the appearance alike of kitchen or parlor by keeping fittings and furniture fresh-looking and unsoiled. Every housekeeper knows what a bane soot and ashes are. Try as she will, it is impossible to prevent the dirt from flying in every direction. Beyond the actual labor involved in cleaning up and cleaning out ashes and in the extra dusting they necessitate, she is troubled to note how fast the ashes and soot are causing her rugs, her furniture, even her wall paper and picture frames, to grow dingy and old. Oil is as clean as electricity when properly handled, and it is altogether free from a tendency to tarnish silver.

All the advantages of economy and convenience that have been noted in the case of an oil cook stove apply with equal force to an oil water-heater. It is easy to light, gets up heat immediately, saves labor and is always ready for use. One good oil heater in the kitchen can supply hot water throughout a house as effectively as any regular water-heater connected with a coal range.

The oil heater for warming rooms proves a special convenience in the bathroom. There is one notable point in which it differs in operation from the oil cook stove. The heater is so constructed as to radiate the heat as strongly and as *widely* as possible, instead of concentrating the heat at points within itself, as the best oil cook stoves do. An unheated bathroom is a chilly place in the nights and mornings of fall and winter; the shock of exposure on stepping out of a warm bath into cold air is positively dangerous, especially to children. An oil heater, set going a few minutes before the bathroom is to be used, soon brings the room to a comfortable temperature; and as soon as it is no longer needed in the bathroom it can easily be moved to any other part of the room.

The same is true of every room in the house. Nothing is easier than to have your bedroom comfortably warmed before you get up. If you are addicted to the healthy habit of sleeping with your windows open, you can get all the fresh air you want through the night and still get a warm room to dress in in the morning. The ease with which the heat can be regulated also makes it invaluable in the sick room,

where it is of prime importance to maintain an even, equable temperature. As with oil stoves or lamps, there is no excuse for an oil heater smoking. The best oil heaters are equipped with an automatic smokeless device, which makes it impossible to turn the wick up high enough to cause it to smoke, and extinguishes the flame when turned too low. The portability of the oil heater is a prime factor in its economical operation. It is so easy to take it from room to room, wherever heat is desired, and there is no waste of fuel in heating unoccupied rooms. In the "between-seasons" it is just what is wanted to take off a chill that is not sufficiently pronounced to call for the operation of a large furnace or similar house-heating apparatus; and on the coldest day it gives that extra degree of warmth that may be needed to make everything absolutely snug and cozy.

To sum up, oil is invaluable as a fuel to those living in the country, either regularly or for a summer holiday or any longer part of the year, and it possesses advantages that must recommend it strongly to those living in the city to whom economy as well as a convenience is a consideration. Oil is undeniably cheap. Burned in a properly constructed heater it gives an abundant and diffused warmth; while in a well-made oil cook stove all the heat is so concentrated at the burners that the kitchen remains delightfully cool in summer.



Types of Oil Lamps



Fireplaces and Mantels

Illustrated by Leading Manufacturers



THE acme of comfort in building a house, is to many people embodied in the expression—"Give me a fireplace and plenty of closet room." But when one comes to plan a fireplace, immediately there flashes through the mind a generously wide and deep recess, like those of old colonial times, with perhaps an oven or two, and plenty of room in the chimney corner for at least one rocking chair. It takes a genius to build a good open fire, and there is hardly one person in a thousand who will acknowledge that another may be as clever at it as he is.

While this is ideal from an artistic standpoint, and large houses can perhaps accommodate large fireplaces, the practical value of a fireplace does not by any means depend upon its artistic qualities. An artistic fireplace, however, can be constructed on highly useful lines, just as many a useful fireplace may be constructed on highly artistic lines.

The main difficulty to be met in building a fireplace is to make it "draw." The old-fashioned chimney possessed this ability, and the smoke went up the chimney instead of out into the room: it drew well, but in so doing great breezes swept through the rooms. This is perhaps an age of fresh air—but we like it in comfortable doses, not in draughts. It is certainly an age of heat in all forms; but with it all, nothing takes the place of the open fire—it is the magnet which closes the family circle and keeps it intact.

The skill of the modern manufacturer and the modern workman makes it possible for house builders to-day to plan and to build as many fireplaces in a house as desired, with safe chimneys which neither "draw" too well nor too poorly, but suit the size of the room and its location. A great colonial fireplace is far more suited to a summer home than to a winter one; for the all-year-round house a moderate choice will be found to be by far the best investment in the end. A great roaring wood fire in a great colonial fireplace sounds the epitome of comfort; but to make the smoke go up the chimney it is necessary to build a large flue, which will not only ventilate the room but the whole house as well. A big fireplace needs a great quantity of air, and the fire will feed its flames by drawing air into the room through every crack and crevice of the doors and windows.

A good general rule to keep in mind when planning the fireplace is that the opening into the room should be ten times the size of the flue—never more than twelve times. The smoke chamber, or area between the flue and the room opening, is supposed to equalize the force of the ascending draught and smoke and the descending draught.



Louis XIV. Marble Mantel, by Wm. H. Jackson Co., 29 East 17th St., New York City

As in most branches of house building, there have been many improvements in recent years in the building of fireplaces that really heat as well as give an artistic tone to the room.

There is no good reason why a fireplace should smoke—a little knowledge of certain rules for the proportioning of the flue to the fireplace opening, and of the proper fashioning of the throat and smoke chamber, and a little care and honest work on the part of the builder, will produce a satisfactory fireplace that will be



Mantel of simple, dignified design by the Voss Mantel Co., Louisville, Ky.



French mantel made by the Grand Rapids Clock & Mantel Co., Grand Rapids, Mich.



the "joy forever." The architectural treatment of the fireplace and mantel may be in various styles and is a matter for the taste and skill of the designer.

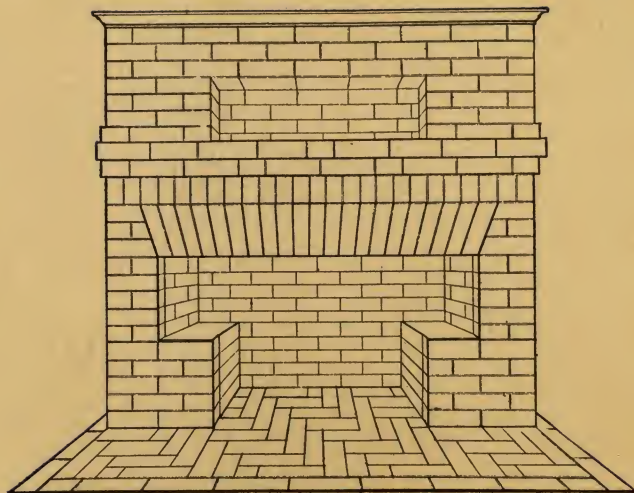
In building a smokeless fireplace, the manufacturers advise the use of a perpendicular flue, or one with a gradual slant; never a flue with short bends or curves, and an independent flue is recommended for each open fire. If a

chimney is designed to serve several fires, the flues should be so divided that each fire will have its separate draught. With care no one need have a smoky fireplace.

The fireplaces built to-day vary from one foot nine inches in the width of the opening, to four feet eight inches; the most popular size, however, being from two to three feet. The width of the mantel depends upon the style, shape and height of the opening. It is a common fallacy shared by many architects as well as by laymen, that a great wide throat insures a good draught, whereas the reverse is true. The narrowing of the throat tends to concentrate the heat of escaping smoke and gas, thereby accelerating their upward movements. Once they have passed this point, the form of the throat prevents their return, no matter how unfavorable the weather conditions. The pocket formed just back of the top of the throat assists in preventing down-draughts from entering the throat.



Andirons made by the Rathbone Fireplace Mfg. Co., Grand Rapids, Mich.



Brick Fireplace designed and made by the Kreisler Brick Mfg. Co., New York,

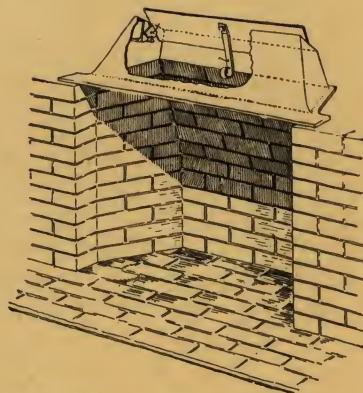
Splayed jambs and a sloping back tend to throw the heat out into the room, and are less stiff in appearance than square jambs and plumb backs. No fireplace should be less than fifteen inches deep; twenty inches is better, and for very large fireplaces twenty-four inches is not too deep; but more than that is unnecessary.

In the construction of the back, which is the key to the whole fireplace, it

is important that it should not be drawn forward at all sharply, until well up toward the top of the fireplace opening, otherwise, even with an excellent draught, smoke will strike the top of the opening.

The throat, that part of the fireplace where it contracts just above the arch, is vitally important, for if this is not properly shaped there will be trouble in the form of smoke working its way out into the room, no matter how good the draught may be. As before stated, it is advisable that the throat should be provided with a valve or damper to shut off down-draught, and control ventilation.

When the outside atmosphere is warmer than the inside, especially in the warm months when the fireplace will not be in use, the air in the flue will drop, producing the down-draught and carrying with it particles of soot which may damage



Fireplace designed and made by the H. W. Covert Co., New York.
Note construction for draught.



A grate of attractive design made by the Rathbone Fireplace Mfg. Co., Grand Rapids, Mich.

carpets, rugs and furniture. Another cause of the down-draught is the rebounding currents of air from a sloping roof when the wind is from a certain direction.

When the windows are kept open during the warm weather, fireplace ventilation is not required and the damper can be kept closed, effectually shutting off the down-draughts. In the cool months the down-draughts are not so likely to occur and the fireplace will provide the best of ventilation, even if there is no fire.

The throat in the old-fashioned fireplace was of masonry, but to-day we have also the cast-iron throat built into the chimney construction, which is said to secure the following advantages, while its cost is a saving on the time of the bricklayer. The iron is designed to form a strong lintel to support the masonry of the chimney above, presenting smooth surfaces at an easy angle, to lead the gases into the smoke chamber, protecting the woodwork of the mantel.

An expert advises that the smoke chamber should not be larger than necessary and should be drawn in at first toward the center of the chimney, otherwise the fire will burn in a one-sided manner; then it can be drawn over to whichever side the flue must pass up. The sides of the chamber should be reasonably smooth and all square angles or shoulders avoided, reducing gradually in area until it connects with the flue. A large smoke chamber is to be avoided, as it will simply hold a large volume of comparatively cool air to retard the flow of the smoke and gases to the flue.

A first-class flue is made not less than eight inches thick of brickwork, laid in cement mortar, surrounding the flue at all points; or set in a tile lining, surrounded with four inches of brickwork. If four inches of brickwork only can be obtained, because of lack of space or for any other reason, the tile lining is an absolute necessity.

In constructing your chimney, be sure that the top of it extends about two feet above the highest point of the house-top.

The open wood fire on andirons, while most attractive in any room, is not always practicable: it is often wiser to provide a grate in which a warmer fire may be made of hard coal, peat, coke, soft coal, or gas. Different conditions in your house or locality will govern the selection of type.

Perhaps it will be desirable to install a fireplace that will heat other rooms than the one that contains it. In that case a special flue must be installed, and the grate that is selected be one of a type that is best calculated to serve the purpose for which it is designed. A fireplace which operates on the return-draught principle, the same as a stove or a furnace, is said to give good satisfaction, and to be a perfect ventilator. This type may be piped to any chimney, and claims to preserve an even temperature at all times, both at the floor and elsewhere. Any flue is suited to this fireplace, and the only attention required is occasional coaling, where coal is used, and the removal of ashes once a day.

Machine-made wood mantels to-day represent great care in design and workmanship, and are found in the most elaborate houses. The more expensive hand-made mantels are beyond the average modern pocketbook, attractive as is their style.

The proper finish of the wood in a mantel adds much to its effectiveness. Often the wood is rubbed and polished only, sometimes a gloss or velvet finish is preferred, or a waxed surface. The finishing of the wood is usually done at the factory.

With the brick mantel, a brick hearth and fire back are generally used, either one solid piece or laid with small bricks; and in addition to the smooth, plain bricks there are rough-surface bricks and various ornamental faces. The modern ornamental bricks are patterned after the most artistic Greek and Renaissance designs, often giving the appearance, when set in the mantel, of hand-carved woodwork.



Fireplace made of Tapestry Brick by Fiske & Co., New York.



Rovaque Tile is used in the construction of this Fireplace. It is manufactured by the Rochester Sewer Pipe Co., Rochester, N. Y.

Brick for fireplaces can be had in pink, red, cream, gray, brown and buff, in many sizes and with many artistic moulded designs which work in well as ornamentation for the plain-face brick when desired.

The sight of a set of fire tools and a pair of andirons always give a comfortable feeling of warmth and delight. It is desirable to have harmony between the tools and the andirons, if andirons are used, or with the tools and the fender and grate. Modern andirons are made in almost every conceivable shape and in many sizes, with brass, cast and wrought iron faces. The main difference in the make of andirons is in the height and design of the face uprights. The bars which support the logs are usually of a size, unless required for a specially large fireplace.

Fire sets, consisting of tongs, shovel and poker, and oftentimes a hearth brush, are made in such artistic designs that they are distinctly an ornament as well as a necessary group of tools.

Hearth fenders, made of the same materials as andirons and the fire tools, are made to-day in low and high designs, on strictly simple lines as well as those entirely ornate. The high, closely built fender for protection of floor and carpet, is a very different construction from the purely ornamental fender, which is low and merely used to outline the hearth.

Portable fireplace fronts may be bought at any time to fit your fireplace if you desire to close it during the summer. Andiron basket grates are very useful in a fireplace which is designed for wood burning in the moderate weather, but where coal is desired during the winter. When through burning coal, the grate may be removed and the andirons substituted.

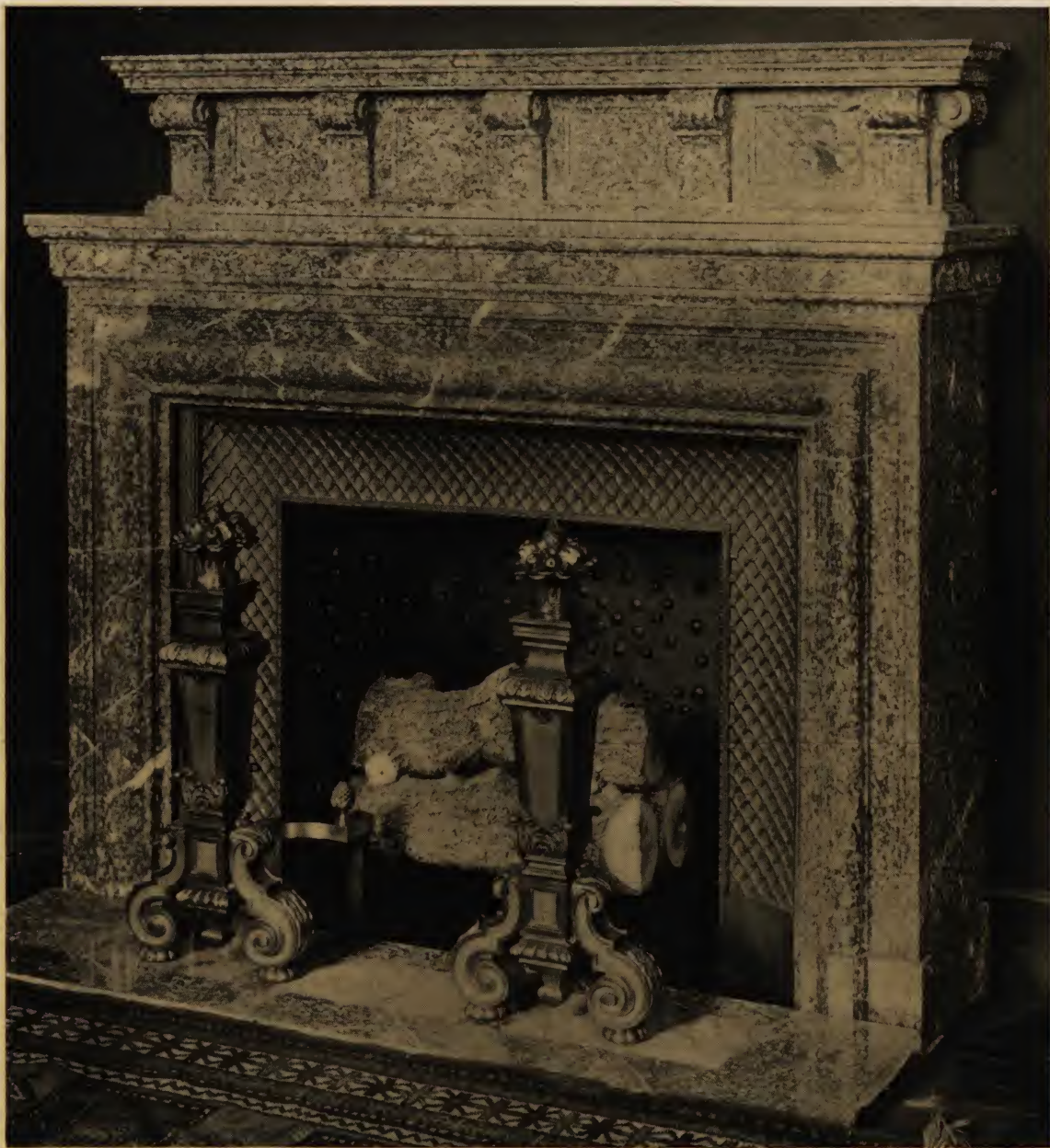
The fireplace provides the best of ventilation for any room, as it takes the air from near the floor, producing a downward current of the superheated air near the ceiling, thus tending to equalize the temperature of the room. In these days of hygiene, this point is one which is well to remember in the construction of the sleeping room, as well as the living rooms. In summer the windows are open, and the lack of natural ventilation is not noticed. But in the cooler weather we are apt to forget that freshness in the air is necessary to the making and the keeping of a strong constitution.

With a grate fire the instructions regarding the removal of coal ashes are opposite to those for the care of the open wood fire. In the open fireplace the wood ashes are left to accumulate from day to day, and the fire burns better for a good bed of ashes. In a coal grate, however, a thorough cleaning once a day is required to preserve good burning qualities.

A modern grate, in which satisfaction is promised, has a curved and corrugated top, which reflects the heat into the room. The fire-pot being lined with fire tile to a height that will protect the back from live coals, gives one a sense of security. The tile may be renewed at any time. This grate may be set by any mason, and it is claimed that where the chimney itself is imperfect the double-draught-system grate tends to correct the bad points of the chimney.

The gas grate of to-day is a very different article from that installed when gas burning was first introduced—as a fireplace ornament. The perfection of manufacture has resulted in a grate with which no one can find fault. Gas grates are of two varieties—those which require a chimney or flue and those that require neither. The grate requiring a flue is termed a multiple burner: it has a perforated face plate with cast-iron back to the burner; this gives a flame over the entire face. The back of the grate is lined with heavy asbestos board.

The flueless and odorless gas grate has the same burner as the other, but is constructed differently on three different plans: One has an asbestos back and hot-air chamber around the fire, with asbestos board lining, which passes the heated air into the room through the register under the board. The second is the cast-iron imitation log; and the third the odorless terra-cotta log, both without



Wood and Tile Mantel, by Wm. H. Jackson Co., 29 East 17th St., New York City

an air chamber. Odorless gas logs are constructed on the same principle as the gas grate.

The choice of a fireplace mantel requires more thought than it did a dozen years ago, because the materials and combination of materials have, in the hands of clever specialists, been perfected to such an extent that there is little to be desired in the way of artistic appearance, utility or convenience.

To some people the fireplace built entirely of ornamental pressed brick or unglazed tile, with or without a wooden shelf, appeals strongly. Others prefer the mantel made entirely of wood, with only a facing about the fire opening of brick, tile or stone, and with or without the beveled mirror above the shelf. Others, especially where there are stately rooms decorated in French style, prefer the imported marble mantel. The choice is merely a matter of taste, but it is well to



Mantel of Flemish design by Steul & Thuman, Buffalo, N. Y.

bear in mind the general style of the room itself, in making a decision. The mantel is often the "making" of the entire room—it is undoubtedly the most important of the stationary furnishings.

As to the wooden mantels, the styles and finishes are so varied that a careful investigation is desirable before a definite choice is made. Of course the mantel wood should correspond with the other wood trim of the room and the style of the mantel with its architecture. The rest is a matter of combination of the proper facing material and the proper metal trimmings. The average house builder will do well to consult carefully with the manufacturer and with the architect, and so be sure of thorough satisfaction. To use a tall mantel supported by Colonial pilasters, in a small new-style room, would be almost as certain to result in dissatisfaction as to use a mahogany mantel when the room is finished in oak.

Mantels and the open fireplace more surely and accurately reflect the artistic taste and personality of the occupant of a house, than almost any other single feature of its construction or interior embellishment. They constitute the keynote of the entire scheme of the decoration of a room, and upon the judgment shown in their selection and placement depends in a large measure the success of efforts to beautify the home, and give to it the charm of repose and culture.

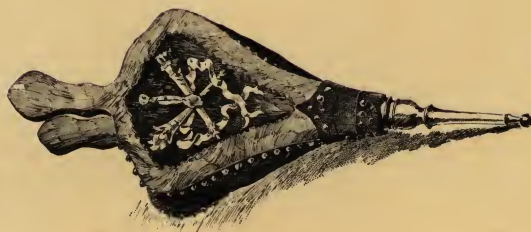
It is needless to consider here the hygienic value of the open fireplace, for it is quite well understood that there are no easier means by which proper ventilation can be secured. Experiments along this line show that the air can be withdrawn from a room and replaced with fresh oxygen two or three times an hour, proportionately to the size of the room to the size of the fireplace. This obtains when there is no fire, but the change of atmosphere is vastly accelerated when there is a blaze on the andirons, or a bed of coals in the grate.

Modern architects have come to recognize the value of the mantel and fireplace, and they almost never plan a dwelling of modest, or greater proportions, without including these architectural features.

Architects of the Colonial period, obliged to depend on the open fireplaces to heat their splendid mansions, soon awakened to a high appreciation of their great decorative value as well, and as a consequence, elaborated these features, with the result that the houses of the pre-Revolutionary period present an interior charm and splendor that is at once recognized, and to which the present generation owes much.

So in these days, builders and designers have returned to an elaboration of the mantel, or to making it the central and most noteworthy feature of interior architecture. Other methods of heating may have robbed the open fireplace of a part of its utility, but modern designers have not given us any substitute for it as a decorative feature, nor have sanitary experts provided means of ventilation comparable with it and its freedom from the fatal faults of creating draughts. However, its mission in furnishing warmth has been but little curtailed in these days when we live warmer than in the past. In the northern half of this country there are, on an average, not more than four months when fire indoors is not required. During four of the remaining months, the heat supplied by the open fire is adequate to keep the temperature of the house at the comfort point, and during portions of the winter months, it is often a necessary, and always a cheery accessory to the regular winter heating plant. In southern sections of the country it has an equally long term of effective service, by reason of its employment extending further into the winter. Consequently the need or use of an open fireplace is almost as great in one section as another, and its use is general throughout the country. Combining all these good points, its practicability and adaptability with its undoubted popularity, the open fireplace is likely to endure for all time.

In every house where there is an open fire, it is the daily focal point of the family. However cheery may be the other portions of the home, the house-



FIREPLACE WOOD BASKETS AND BELLOWS, BY E. BRADLEY CURRIER CO., NEW YORK

hold and guests will group about the curling flame in unconscious compliment to its cheer, its charm, its coziness. In the hall, library, dining-room or bedroom, it is equally grateful and small is the wonder that it is so popular, that in the larger American homes one is to be found in every room.

To be sure, care and appreciation of fitness must be exercised in the selection of a mantel and fireplace, for the furniture and finishing and shape of the room must be considered, so that harmonious results may be secured. Too much emphasis cannot be laid on this point, but the matter of proper and fitting selection is no longer difficult, for there are numberless designs to select from, and helpful advice to guide in the choosing, when desired. Manufacturers, realizing the many problems of harmony that they would be called upon to solve, have busied themselves along that line and their offerings seem equal to any exaction in design, material, color, finish; in fact from every point of view. Mantels made of wood or metal, or designed in stone or brick or concrete, are obtainable immediately upon demand, at a moderate cost; the last word in mantels and fireplaces seems to have been spoken, for the designs are innumerable and their artistic qualities unquestionable.

The grates for the burning of coal are almost endless in variety of design, and the same may be said of devices for using gas or electricity as the fuel.

For the wood fire there are andirons or dogs artistically wrought; with such necessary fittings as tongs, shovel, poker, brush, fender, screen and willow basket or massive chests for fuel. If a grate is used, ornate scuttles are prominent as furnishing for the hearth.

The work of the artist is shown in the design, and that of the skilled craftsman in the manufacture.

Much talent and ingenuity have been expended in making the mantel and the open fireplace the most attractive feature of the modern house, as they were in the days of our ancestors; the hearthstone center of the family circle, the most charming, restful spot in the home.

Our illustrations are taken from a number of the most successful manufacturers and give a good idea of the wide range in which they may be had.



Tile fireplace, made by the Rookwood Pottery Co., Cincinnati, O.



Lighting Fixtures

By E. LEAVENWORTH ELLIOTT

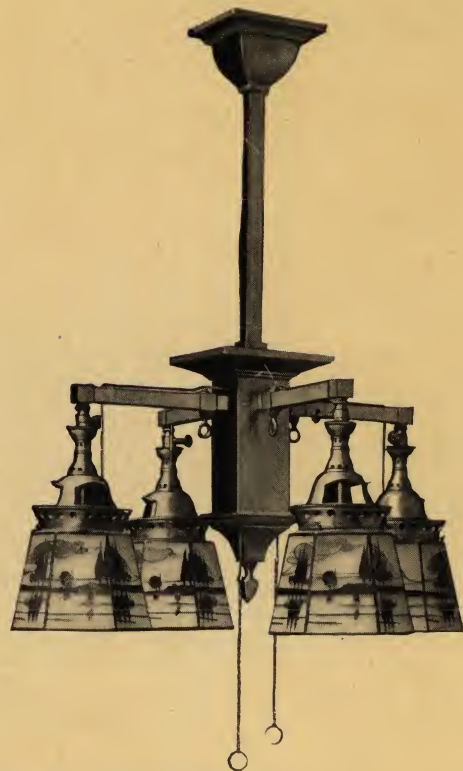
Illustrated by Leading Manufacturers



HERE is some difference of opinion as to whether lighting fixtures are a part of the structure of a building, or a part of the furnishings. If the former view is sustained, then the design of the fixtures must harmonize with the architecture; if the latter view prevails, then the designs will harmonize with the furnishings. Perhaps the most satisfactory answer to this question is to accept both views, but differentiate between classes of buildings. In public buildings, in which the architectural features are of a distinct type which is sustained throughout the building, even to the interior decorations, the fixtures may be treated architecturally; but in residences, in which the architecture is naturally of a much more eclectic type, and where the decorations determine the character of the interior, the lighting fixtures may more properly be considered as furnishings.

As to the cost of lighting fixtures, only general observations are possible. The first and most obvious of such observations is, that in the vast majority of cases the money expended on this item is ridiculously inadequate, and out of all proportion to the other furnishings, and to the importance of the lighting fixtures in the decorative scheme of the home. It is by no means an uncommon occurrence to find a \$10,000 or \$12,000 house fitted up with a total expenditure of \$75 for lighting fixtures. Of course, the incongruity is perfectly evident, but for some strange reason does not seem to impress itself upon the owners or occupants. At least 5 per cent of the total cost of a residence should be set apart for the lighting fixtures and 10 per cent or more could often be expended to good advantage. Perhaps this neglect may be due to the fact that the lighting fixtures are the very last thing to be bought in the building of a house; and as the building expenses notoriously outrun the first estimates, it follows that by the time the lighting fixtures are reached the original appropriation has been used up, and a very considerable amount for "extras" added into the bargain. The way out of this dilemma is to consider the lighting of the house at the outset, for surely there is nothing more important than that the home be well and cheerfully lighted.

A matter to which special attention should be given where electric light is to be used is the location of the switches. The ability to turn a light on or off at any distant point is one of the great conveniences of modern illumination, and should be fully utilized. The slight additional cost of the wiring is a small matter compared with the convenience secured in having all the switches necessary for the most



LIGHTING FIXTURES BY THE WELSBACH CO., GLOUCESTER, N. J.

convenient arrangement possible. Wall switches should be placed close to the door frames at the height of a door knob, and should be of the best quality obtainable. Outlets in the baseboard should be provided for supplying portable lamps wherever there is any possibility of their being needed. These outlets should be of such a design that children cannot get to the electrical contacts. Switches are obtainable which operate by the opening and shutting of a door, and these should be used in connection with all lights in closets. In general, any light may be operated from any point in the house. It is only a question of deciding what arrangement is most convenient and having it specified by the architect.

Lighting fixtures may properly be considered as either art metal or art glass, or a combination of both. In most cases they have a distinctly utilitarian purpose to which the artistic or decorative features are subsidiary and incidental, practically the only exception to this statement being the small number of table lamps and candelabra that may more properly be classed with luminous decorations. It is a generally accepted principle of decorative art that the decoration must not interfere with the use of the article to which it is applied.

There is probably no article of house furnishing which so frequently transgresses the principles of decorative, or applied art, as the lighting fixture. For this unfortunate condition of things the householder himself is principally to blame. The fixture manufacturer is an artisan in metal, in connection with which a certain amount of art glass is used. His own commercial interests dictate the use of as large an amount of metal as possible. The results of this commercial motive are everywhere apparent in the excessive metal work of lighting fixtures, and the too frequent neglect to provide adequate means of illumination. The professional decorator has aided and abetted this miscarriage of art by considering the lighting fixtures only as pieces of furniture. The fact must never be lost sight of that a lighting fixture is first of all a piece of mechanism, and nothing may be added which will either interfere with its proper use or which is not really or ostensibly an integral part of the mechanical construction.

It will perhaps be most convenient to consider all furnishing as "period," in which case we may classify the "periods" into historic and modern. The professional decorator distinguishes some thirty or forty historic "periods," but this is drawing the line much finer than the average householder will ordinarily care to go. Neither Athens, nor Rome, nor Mediaeval Europe, nor France a century ago had anything beyond the candle for purposes of artificial lighting.

The question is, how is the modern electric or gas lamp to be harmonized with a scheme of decorative art copied more or less completely from the days before its existence? Truth is generally supposed to be a prime element in art of any kind, and hence any imitations that are physical or mechanical lies must be "bad art." Simulation is admissible, and in fact is fundamental in decorative art; but this is as different from imitation as compliment is from flattery.

How can modern light-sources be used with historic furnishings without committing an anachronism? A method of illumination which takes the dilemma by both horns is the so-called "indirect lighting." In this system the lamps themselves are entirely hidden by opaque reflectors which direct the light to the ceiling, from which it is reflected diffusively throughout the room. The reflectors themselves are generally concealed in a decorative casing. This method of illumination has come into much favorable notice recently, and possesses many virtues. It is exceedingly soft and agreeable to the eyes, does not cast hard shadows and entirely conceals the lamps while not concealing the source of illumination, for a fixture of this kind suggests a large vase overflowing with light. The decorative casing may be made of metal fashioned according to the motives of any particular period, like the other furnishings, or it may be made of stucco harmonizing with the architecture, with which it will form a visible part. Fixtures of this type are



Examples of Wall Brackets and Ceiling Lights executed by The Tiffany Studios, Madison Avenue and Forty-fifth Street, New York City.

arranged with several lamps connected with a self-contained switch operated with a chain, so that any number of lamps may be turned on or off. The room may thus be left in a soft, dim light, in case no particular eye work is required, or illuminated with any desired degree of brilliancy.

Plain, tinted opalescent glass is sometimes useful where it is desired to give a warm tone to the illumination, or to harmonize with a particular color scheme in furnishing. Of course, such globes absorb a considerable portion of the light, which must be allowed for in providing the light-sources. Richly colored translucent glass, similar to that used in stained glass windows and assembled in the same manner, is a favorite method of producing large domes or shades. Such pieces are necessarily expensive, but are works of art in themselves.

Colored shades are to be had in a great variety of effects, and if used with a proper consideration of color combinations are capable of producing beautiful results. They are often a practical means of introducing the touch of brilliant coloring which relieves and sets off an entire decorative scheme. The exquisite creations of Tiffany, known as Favrite glass, are in themselves objects of art and while the general impression is that they are too expensive for ordinary use, this is, in fact, not true.

There is also another glass which has many of the same characteristics and which is known to the trade by the name of Iris, shown on the opposite page. This glass has a beautiful iridescent lining which gives a pleasing effect when lighted. It is also said to be very moderately priced.

The translucent glass known as "Alba" has somewhat the appearance of the

gem known as moonstone, but is slightly more opaque and resembles very closely pure white onyx or alabaster.

We shall probably be within the limits of ordinary knowledge of the subject if we divide the historic periods in fixtures according to countries, as follows: Classic, English, Dutch, French, and Colonial, and the modern into Art Nouveau, Mission, and Arts and Crafts.

In lighting fixtures intended to represent the Classic period the more conspicuous elements of classic architecture, such as the capitals and columns of the various orders, the egg-and-dart moulding, and the laurel or oak wreath are utilized, while the torch and the ancient oil lamp are simulated or imitated.

The English period includes a variety of motives involving the characteristics of early English architecture and furnishings. The imitation of hammered and hand-wrought metal, either copper or iron, serves as a basis for a class of fixture designs which are effective in rooms in which there is a large use of wood paneling. Such fixtures are Mediæval in spirit, and are necessarily strong and rugged, even to the extent of massiveness, and are therefore unsuited to smaller rooms. The anachronism of the electric lamp is often hidden by enclosing it in a lantern-like globe having panes of stained glass or roughened mica. All such globes are very highly absorptive of light, and hence such fixtures are inefficient from the illuminating point. Where they are used, therefore, this fact must be taken into consideration, and a sufficient number of lamps used to produce the desired brilliancy.

The old baronial halls of England furnished motives for a quite different type of decorative treatment. In these generally there was a lavish use of oak carving which was worked out in a masterly manner, with deep under-cuttings and bold relief. The architecture of these halls was of the English Gothic in which the characteristic pointed arch was so flattened as to adopt it to domestic use. The use of heraldic designs in the form of shields and armor was also a distinct characteristic of this period. Lighting fixtures carrying out these motives are to be found, and are especially effective in dining-rooms and libraries finished in a more or less close reproduction of the baronial furnishings.

Another fruitful source of motive for fixture design is found in the celebrated wares produced by the Sheffield silversmiths. This is particularly available since there is a closer analogy between such metal work and the metal work of lighting fixtures. Designs of this character, particularly in the glassware used with fixtures, have come into such popularity that the term has come to be used about as loosely as Queen Ann in architecture; anything exhibiting an alternation of large and small ribs being classed as Sheffield. This, however, does not prevent the production of highly artistic pieces from these motives, as the illustrations given will amply prove.



Three pieces of "Iris" Glass made by the Fostoria Glass Specialty Company, Fostoria, Ohio.
"Iris" is a remarkable combination of artistic distinction and illuminating efficiency. There is an interior lining of iridescent glaze that reflects the light.

The division classed as Dutch is generally distinguished by the use of forms produced on the turner's lathe, little superficial decoration being used. Brass candlesticks and andirons of Dutch origin furnished the general motives for this style of decorative treatment. The finish given the metal in this case is also one of the most characteristic features, being what is known to metal workers as brushed brass, and in decorative art as Flemish. The surface is not brought to a perfect polish, but is left with the fine marks of emery paper, or the scratch brush, and lacquered to a slight greenish color. The Dutch dining-room has become a very popular feature, especially in that architectural class of dwellings known as flats, and fixtures of this type are of course the preferred type in such cases.

Colonial architecture has enjoyed special favor in this country for the past decade, which shows little signs of waning. As Colonial America was settled by three different nations, the English, Dutch, and French, it would naturally follow that the architecture and furnishings of these three countries at that time should have a large influence upon the architecture and furnishings of the colonists. The English Puritan influence prevailed in New England, the Dutch in New York and surrounding territory, and the English Cavalier in the South. New England colonial architecture was more purely classical and severe, as reflecting the sterner Puritan character, while the English Colonial reflected more of the gaiety and lightness resulting from the French influence on the higher caste English; the Dutch introduced the habits and furnishings of their native land.

Where any of these three types are followed closely in the general architecture, the furnishings and fixtures will naturally be differentiated. Thus, in the New England Colonial, the elements of classic Greek architecture are frequently found as motives.

Candles and lamps being the two illuminants used in Colonial days, they are largely simulated in electric and gas fixtures. Where this is done with the electric light care must be taken to prevent too obvious anachronisms. The ordinary electric lamp bulb, or what is more frequently used, the round bulb electric lamp, has no similarity whatever to the candle flame, and is therefore wholly out of place on imitation candles. Small electric lamps with special bulbs are made for this very purpose, and can be had from the dealers. These should always be used where the candle effect is desired. Perhaps the better way is to provide the candle with a small shade which covers the electric lamp.

The oil lamp, fitted with an ornamental glass shade and decorated with glass prisms, is a particularly pleasing piece of art, and has been largely used in fixture design. Where it is desired to give a distinct Dutch effect, the motives previously mentioned can be utilized.

In the Southern Colonial the more florid decorations characteristic of the French are found. The classic wreath, livened up with French taste, the flower basket, and other devices having a decidedly French flavor are to be found in lighting fixtures of Colonial times, and in the present day reproductions. In a vague way all of the motives enumerated are utilized in what are termed "Colonial" fixtures; and so long as it is not the intention to adhere strictly to any of these types, such fixtures are entirely permissible.

A type of architecture and furnishing, which is the very antithesis of the French schools in its austere simplicity, has been derived from the old Spanish missions of the Pacific Coast. The design of the furniture is the result of the enforced freedom from all ornamentation due to pioneer life.

With the exception of the imitation candle using an ordinary gas jet, all kinds of lamps should be surrounded with some sort of glass shade or globe to diffuse the rays and remove the glare. Illuminating glassware is no longer a mere decorative accessory but an essential part of the lighting fixture. All modern light-sources are entirely too brilliant to be directly viewed by the eye. Serious consequences may result from a neglect to recognize this fact.



Globes and shades may be divided into five general classes, according to their material and decoration, as follows:

First: clear or crystal glass decorated by frosting or cutting, or a combination of both.

Second: opal glass, sometimes called "porcelain."

Third: prismatic glass.

Fourth: colored, or art glass.

The first of these classes includes an almost infinite number of shapes and designs, varying in price from nearly the cheapest to fairly expensive. The frosting is of two kinds, that of a coarser grain done by sand blasting, and a fine grain which is the result of acid etching. The latter absorbs somewhat more light than the former.

This second class includes the plain white globes and shades so commonly used for softening and diffusing light, for which purpose they excel all others. Glass of this kind also forms the basis of many of the large hand-painted globes. A less dense glass generally known as "opalescent" is about equally common. Plain opal or opalescent glass has little decorative value but is decidedly useful as a method of preventing glare.

Under third class are included globes and reflectors made of clear glass with prisms scientifically designed for distributing and diffusing the light. Globes and reflectors of this kind are very efficient, and possess the brilliancy and sparkle of cut glass, which gives them an artistic value. Prismatic glass must be carefully distinguished from the common pressed globes with indiscriminate ribbings.

So much effort has been expended since the introduction of the electric light

on the development of electric fixtures that the gas fixture has been neglected. Gas light, however, has fairly kept pace in improvement with electric lighting, and in the great majority of cases quite as artistic fixtures are obtainable for gas as for the electric light. The latest and most improved form of gas lamp is known as the inverted burner, which is the familiar Welsbach burner arranged for use in an inverted position, *i. e.*, with the mantle below the flame. This permits of certain forms of artistic treatment that were impossible with the original form of burner.

In addition to the more artistic design of fixture, the modern gas lamp does away with the one annoyance of this form of light, namely, the use of matches. By a simple device known as a "by-pass," or "pilot light" the light is turned on by a slight pull of a chain, and extinguished in the same manner. The pilot flame is a tiny gas jet which is left burning continuously, and serves as a lighter for the regular gas burner when the gas is turned on. The amount of gas consumed by a pilot light is so small as to make no appreciable difference in the total cost.

Of designs of portable lamps there is simply no end, and one may gratify any fancy within the limits of his purse. Where the portable lamp is used as a practical lighting unit, and not merely as a decoration, care must be taken to select a shade that will give a sufficiently large illuminated space beneath. Many of the decorative shades shown have been designed solely as objects of art in themselves, and are so contracted at the bottom as to give only a very limited area of light. A special lamp has recently been designed for use with the new tungsten lamp which has a simple device for "turning down" the light, *i. e.*, of reducing its brilliancy. This is a desirable improvement, as it frequently happens that such a lamp is used for reading for a portion of the evening, and for the general illumination of the room afterward; and in the latter case a less brilliant light is often pleasanter.

Table lamps offer greater possibilities for purely decorative treatment than the regular fixtures, for the reason that they are always seen at close range, and a greater variety of materials is available for their construction. The lamp must plainly declare its purpose, *i. e.*, the base must show that it is designed to support a lamp. To attach a lamp bowl to the head of Minerva, or the effigy of any lesser personage, is taking unwarranted liberties with the sculptor's art. Very artistic and practical lamp bases are now made of art pottery, a type of artisanship in which the American is rapidly coming to the front; in fact, some of the very recent lamps shown, in which the shade as well as the bowl is of pottery, are finished with glazes that have heretofore been only seen on Chinese antiques of almost priceless value, since the art of making them has been lost even in the land of their origin.



Some "Fulper" Pottery Lamps in the exquisite Vase-Kraft high fire Glazes and showing beautiful colors, shadings, tones and textures.

A number of years ago a new school of decorative art sprung up which called itself simply the "New Art," or "*Art Nouveau*," the French equivalent, which has become the internationally accepted term. This school is a reaction against the copies of historic art that have so long prevailed. While they claim to be absolutely untrammelled and eclectic in their motives, the designs thus far developed have all shown a certain similarity in spirit. The key-note of this spirit is lack of conventionality, the graceful curves and forms found in nature being reproduced in their natural condition without being mutilated or stiffened up in order to conventionalize them. This school of design has gained a very large degree of popularity in Europe, but has made comparatively little headway in this country as yet, except, perhaps, in jewelry designs, which are imported. To what extent it will be adopted in America is yet to be determined, and will doubtless depend upon the originality and ability of the decorative artists that take up this new school. Very few American manufacturers show designs in *Art Nouveau* fixtures, although there are a few examples which show that they have not been entirely oblivious of the movement. Such fixtures may be used in rooms of neutral architecture, such as those in the majority of flats and apartments, where the arrangement is simple.

A new form of fixture, in which all the lamps can be turned on by the pull of a single chain, is sold under the trade name of "Reflexolier." This fixture is made in a large variety of designs at reasonable prices. It is also to be had with an electric attachment, using a single dry battery enclosed within the fixture itself, by which the light can be turned on and off by pressing a button, as in the case of an electric light. The button can be either located at the fixture, or at any point on the wall.

The combination fixture, using both gas and electric light, is still much in use, and rightly so; and when designed for use with the inverted gas lamp particularly harmonious designs are obtainable. Mantles giving a warm, amber-colored light are now to be had.

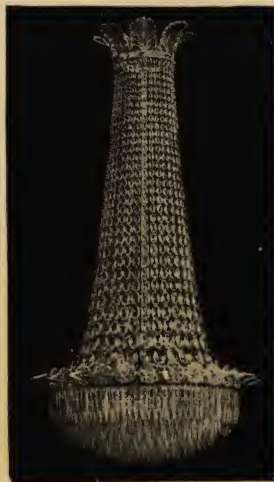
Two special classes of lighting fixture which deserve mention are the "dome" and the portable lamp. The dome is a single shade with one or more lamps underneath, and has come into very wide use as a dining-room fixture. The chief decorative feature is commonly the shade, which is most frequently of leaded or art glass. Many of the dome fixtures are very wasteful of light, being often provided with a cluster of from three to six electric lamps. In selecting a fixture of this type at the present time care should be taken to see that it is so arranged as to take a single lamp, and that it has a separate reflector of either opal or prismatic glass over this lamp within the dome. A single tungsten lamp is then the proper illuminant, or where gas is used, a single inverted burner.

Prismatic reflectors are also serviceable for use in connection with the more purely decorative shades. They reflect a large portion of the light, increasing the illumination below where it is generally most useful, and still allow enough to pass through to show the color or character of translucent media, such as stained or colored glass, of silk. The designs specially intended for residence use are also decorative in themselves, as well as efficient.

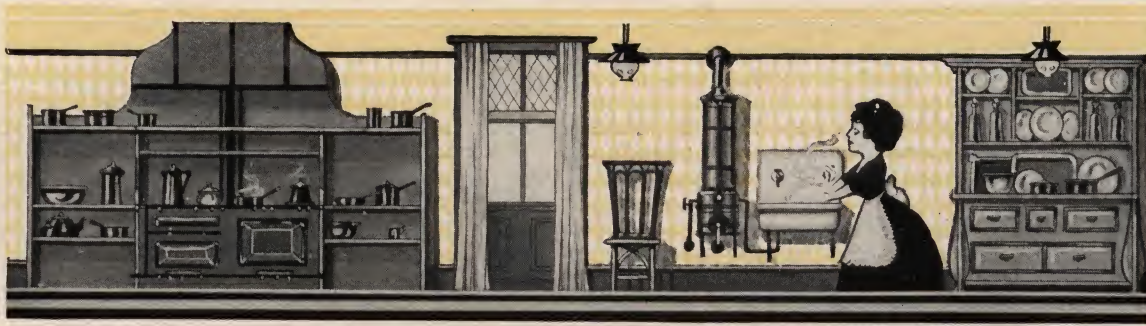
Electric lamps have been greatly improved within the past few years in point of efficiency. The new lamps have metal filaments instead of the carbon filament of the older type, and give from two to three times as much light for a given amount of electric current. While the lamps themselves are somewhat more expensive the difference in cost is much more than made up in the saving of current. These lamps are generally spoken of as "tungsten" lamps. The lamps are furnished in larger sizes, *i.e.*, in higher candle-powers, than the carbon lamp, the smallest size made for ordinary use being that rated at 25 watts, which gives about 20 candle-power. The lighting companies furnish these lamps instead of the

ordinary carbon lamp when requested, with some additional charge to cover the difference in cost.

There is a style of fixture which was developed to a high state of perfection in the time of the Louis' that has held its popularity more continuously than any other single type. This is the fixture depending almost entirely upon cut-glass prisms and jewels for its decoration—the "*lustre*" of old times. The large measure of popularity accorded this type of fixture is undoubtedly due to both its inherent beauty and its adaptability to all styles of architecture and furnishing. There is much to be said in favor of glass as a material for lighting fixtures. The chief of its advantages is its transparency. While the metal fixture may show all of its decorative features properly by daylight, it very frequently happens that, when lighted by its own illumination, the effect of the ornamentation is entirely lost in shadows and distorted high lights. Polished crystal glass is a thing of beauty under any illumination, and this beauty is enormously heightened when the glass scintillates with the brilliancy of reflections and the play of prismatic colors. Fine old lustres can occasionally be picked up from the house wreckers and junk dealers. The art of glass making has made great progress, especially in America, during the past twenty-five years, and beautiful glass candelabra of domestic manufacture can now be had very reasonably. The lustre, or glass fixture, however, is still imported, and is to be had in exceedingly beautiful forms.



A crystal chandelier, decorative and brilliant, made by Siegman & Weil, New York.



Labor-Saving Devices

HELEN LOUISE JOHNSON

Illustrated by Leading Manufacturers



NOT long ago a statement was made by a man connected with the Library of Congress, one closely conversant with the progress of events in the American home, that the domestic service problem was to be solved by the adoption of labor-saving devices. But what is a labor-saving device?

It is that device which performs a certain labor or work as well as it has been done before, yet with a saving of time, money or energy. A good vacuum cleaner is a labor-saving device. So also is a good washing machine, but as yet there has been made no dish-washing machine for household use

which can fitly be called that, although there is one that approximates it. For a labor-saving device for factory or home is not merely a machine which will perform a certain task. It must perform it in accordance with a definite standard of result. The manufacturer does not supplant hand labor with a machine until he has proved that the device will produce a greater quantity or better quality in a given time.

Thus it follows that there are many points to consider before the housewife or home economics teacher can determine the value of a so-called labor-saving device. The advantages and disadvantages of each piece of apparatus should be thoroughly considered and, more than all, understood before a decision can be reached and choice or selection made. The needs of homes differ widely just as do the needs of individuals, but withal there are certain general lines of work to be accomplished with a growing necessity for fewer hands needed to perform the labor involved.

For the fact is that the home is years behind the shop in its adjustment to modern conditions and consistent demand is only now being made for mechanical appliances to reduce and simplify and ease the work in the home, because up to this time the need for these has not been felt. There is no longer any use in discussing the domestic service problem, for, speaking in general terms, the domestic has gone. The question is what may fill her place, to which the reply is plain—the modern, the perfected and adjusted mechanical device.

For the housewife, to whom the selection of these things is left, there has been far too little definite help. She has been left to the mercy of the specious seller of good, bad or indifferent goods and, having been misled again and again, has become suspicious and questions everything. This book is designed as a partial guide to the woman who is desirous of equipping her house in the best possible way.

There are two general classes of work carried on in the house today; namely the

cooking and the cleaning. The former is the more definite process but involves the use of some device which will produce heat as well as one which holds the cold by which the food cooked or uncooked is kept for a period of time. That is, a refrigerator and stove and cooking utensils are required for the cooking. The cleaning, however, means the washing and cleaning of many things; dishes, fabrics, woodwork and the appliances used for the cooking itself. And because of the growing body of science as applied to the home, this cleaning process has seemingly ceased to be a simple affair and resolved itself into intricate processes.

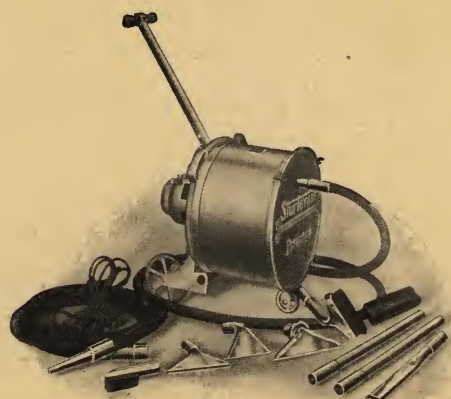
Let us take up first the cleaning of the house itself with the question in mind of the actual labor-saving device known as the vacuum cleaner. If there is any question as to the



Cyclone Vacuum Cleaner made by the Cyclone Vacuum Cleaner Co., Bradford, Pa. Charles W. Emery, Philadelphia, representative.



Coffee Percolator made by Landers, Frary & Clark, New Britain, Conn.



Vacuum Cleaner and Attachments, made by the B. F. Sturtevant Co., Hyde Park, Mass.

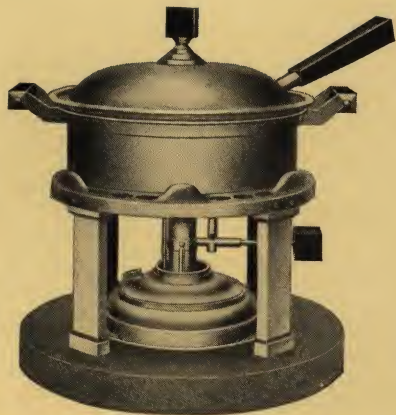


Corona Roaster made by the Enterprise Enamel Co., Bellaire, O.



Tea-Ball Teapot made by Landers, Frary & Clark, New Britain, Conn.





No. 356/90. — Alcohol Gas Stove Chafing Dish,
"Alcolite" Burner.



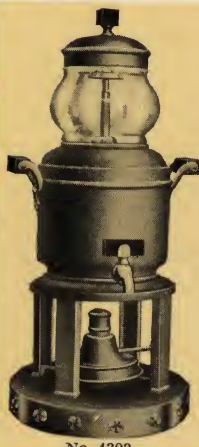
No. 6672. — Tea Ball Tea Pot. Transparent view of
tea ball raised.



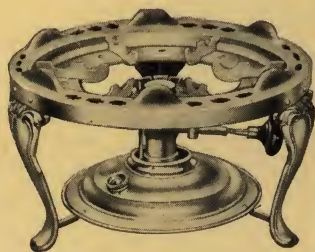
No. 9093. — (Aluminum) Percolator, Coffee Pot Style.



No. 345/84. — Alcohol Gas Stove Chafing Dish,
"Alcolite" Burner.



No. 4393.



No. 84. — Alcohol Gas Stove,
"Alcolite" Wick-Feed
Burner.

No. 4393. — Urn Style, Coffee
Percolator.



No. 9093. — Coffee Percolator,
transparent view.

MADE BY MANNING, BOWMAN & CO., MERIDEN, CT.



The DUNTLEY PNEUMATIC CLEANER—the original household vacuum cleaner—is now in daily use in over 250,000 of America's best, most modern homes.



"Best by every Test."

For Durability, Quiet Running, Efficiency and Varied Usefulness, it has no equal. This machine, in competitive tests, has won Gold Medals (highest awards) at two great International Expositions and several lesser Exhibitions.

"It cleans everything!"

The New
DUNTLEY
AIR WASHER.

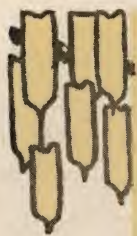


Wonderful in its effect on the air indoors. This is an electrical device containing a suction fan which draws the impure air through water, thereby washing out all dust, smoke, organic matter and bad odors. If you so desire, delicate perfume may be used. Indispensable for your home in winter.

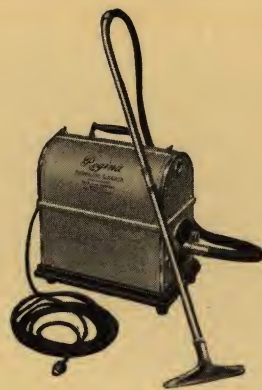
DUNTLEY MANUFACTURING COMPANY

494 HARVESTER BUILDING

CHICAGO, ILLINOIS.



Air Washer—A new device for purifying and cooling the air—made by the Duntley Mfg. Co., Chicago, Ill.



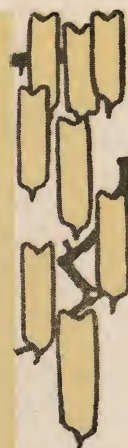
Vacuum Cleaner made by the Regina Co., New York.



Vacuum Cleaner made by the Hoover Suction Sweeper Co., New Berlin, O.



Electric Renovator—a type of vacuum cleaner made by the Electric Renovating Co., Pittsburg, Pa.



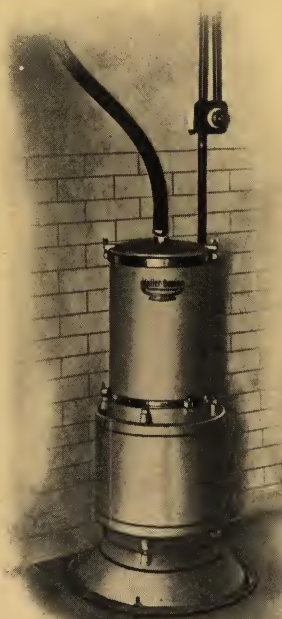
value of a machine of this character, it must come from those who do not fully understand its use. The first consideration of sanitation is that there must be a quick removal from our houses of the material we have done with. Now dust and dirt is useless matter which has accumulated in the house and should be removed as entirely and safely as can be. No dust is positively harmless, for while it may contain no pathogenic germs, dust itself is irritating to the delicate membranes of the nose, throat and lungs. Before the advent of the vacuum cleaner, the most efficient cleaning method distributed the dust in clouds to settle back upon rugs and carpets or furniture and hangings from which a part only could be removed by dusting. To be sure the carpet sweeper cleaned the surface of the rug without this dust distribution, but the best carpet sweeper ever made cannot take the dust and dirt from the meshes of the fabric.

A good vacuum cleaner by its suction power takes up the tiny grains of sand and dirt from the rug and carpet, cleansing it through and through. And for the benefit of the skeptical housewife, let me say that in all the trials and investigations we have made, we have yet to find with the use of the microscope any evidence that their use injures the fabric even when old oriental rugs are under consideration.

There are hand, electric and water-power vacuum cleaners and several installed systems; the choice of which one must depend upon the needs of the individuals. Whenever electricity is available, the electric vacuum cleaner is a household appliance to be recommended and there are many good, efficient ones. The improvement of all forms of vacuum cleaners has been rapid and because of the large and varied market to be supplied a new kind appears nearly every week.



Wall inlets, upper showing flush type, lower showing screw type, as they appear on the base-board where the hose connection is made for cleaning by vacuum machine located in the cellar.



The "Santo Duplex" for Cellar Installation and with Piping and Electric connection to each floor.



The "Santo" Portable attachment can be made with any Electric light socket.

THE "SANTO" VACUUM CLEANERS

The points for the housewife to consider in selecting a cleaner are, first, its simplicity of construction; all parts of the cleaner should be easily available for inspection, cleaning and possible repair; next, the dust receptacle, which should be capable of sterilization as well as thorough cleansing. This dust bag or box or can, whatever it may be, should not be so placed or constructed as to permit a sifting of dust back into the room and it should be easily emptied and cleaned.

The cleaner should be efficient, durable, well made and the motors should be as noiseless as possible. The selection, after these points are established, then depends upon the likings of the purchaser or the possession by any one cleaner of some certain characteristic for which the purchaser is looking.

As to the cost of running the electric vacuum cleaner, that necessarily varies with the cost of current, type of machine, etc., but, generally speaking, a cleaner costs less to run than an electric flat-iron, power being less costly than heat to produce.

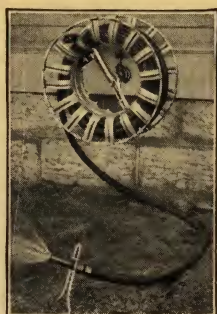
The installed systems are making great headway. They have greater power because of larger engines and there is usually some good way of carrying off the dust without having to handle and remove it from a collecting receptacle. Recently there has been put on the market a most simple type of water-power installation, the entire machine consisting of three horizontal and two vertical pipes. From one vertical pipe leads a small galvanized iron pipe which is carried to the roof. This has water connection below and the action of the wind produces a powerful suction. The dust is removed from carpets, curtains, furniture, etc., with the ordinary tools, hose, etc., having base-board connection, then is carried



The "Easy Emptying" grass catcher. Fits any lawn mower. Made by The Specialty Mfg. Co., St. Anthony Park, Minn.



Asbestos table mat made by the Asbestos Table Mat Co., Chicago, Ill.



Detachable hose reel. Revolves on the faucet. Made by The Specialty Mfg. Co., St. Anthony Park, Minn.



Fireless Cooker made by the Caloric Co., Janesville, Wis.

A GROUP OF LABOR-SAVING DEVICES THAT ARE PRACTICAL AND ECONOMICAL

to the sewer and washed down by the water in the pipes where the suction is created. It is a simple, efficient method which should be durable as there is seemingly nothing to get out of order.

With the hand machine few are very efficient which do not need two people to manipulate, one to work the lever, the other to direct the hose and attached nozzle. But the labor of doing this is comparatively little unless one attempts to clean too many rooms or too much at one time. Many of the hand machines are good. They remove as much dirt again as the carpet sweeper, after this has been used, and the kind of dirt shows the difference between surface dust and ground-in dust and fine sand. The same general rules apply to the selection of a hand cleaner as to the electric device.

With a good vacuum cleaner and its different attachments a house should be practically freed from dust, but this does not mean that it is clean. There is still the washing of clothes and dishes, and the cleaning of many portions of the house. There are a number of devices on the market at present which simplify some of this, such as the dustless dusters, different kinds of mops and house cleaners. The laundry equipment is, however, of special moment because here the labor may be modified so greatly by the selection of the proper tools.

The laundry equipment naturally requires investigation into good wringers, clothes-lines and clothes-line stretchers, clothes-pins and clothes-pin bags, clips for fastening the cover on ironing boards in place of tacking them on, and clothes dryers. Recently there has been demand for a nursery washer, a device in which the infant's diapers can be washed. There is one which can be placed over the toilet, in which the clothes are washed without handling by a plunger operated by hand.

A plug which can be opened or closed by a clamp at the top of the can permits the water to run off, when the clothes may be washed again or rinsed as is necessary without removing from the washer.

The washing machine is scarcely a new device, but it has been slow in making its way because women did not recognize its actual value. A good washing machine used properly, undoubtedly washes clothes in a better and more scientific manner than they can be washed by hand. The object of washing is to loosen, dissolve and remove dirt from the fabric. This is done by the forcing of soapy water through the meshes of the cloth and not by rubbing away the fabric itself. The hand machine is an actual advance over the old-fashioned method and the power washer still further saves labor. The washers usually have wringer attachments and the power may be produced by a water or an electric motor or a gasoline engine.

The gasoline engine is used on the farm to run many of the farming implements and the Western farmer has of late years learned to use it in running a small dynamo by which he produces electricity for many uses, lighting house and barns, and for power in running house as well as farm machinery. The women living on the Western farms have even criticized the Eastern city houses for their belated methods, for lighting, cleaning, ironing and cooking are done by electricity in many an isolated district on the broad fertile prairie lands.

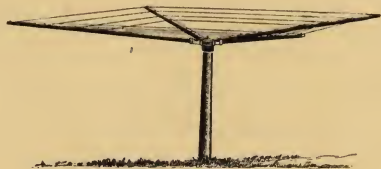
The flat-irons of the present day have either nickeled or polished steel surfaces, these retaining the heat as well as being better to use than the old-fashioned irons. There are several good makes of what have come to be called sad-irons. With a sad-iron having an adjustable handle, one or more nickeled flats can



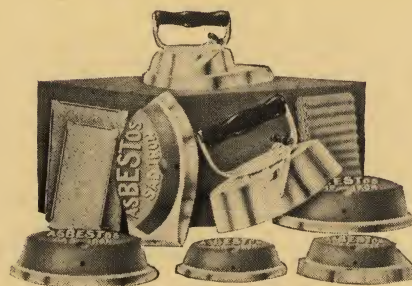
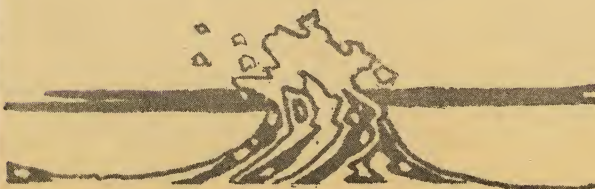
"Simplex" Ironer made by the American Ironing Machine Co.,
Chicago, Ill.



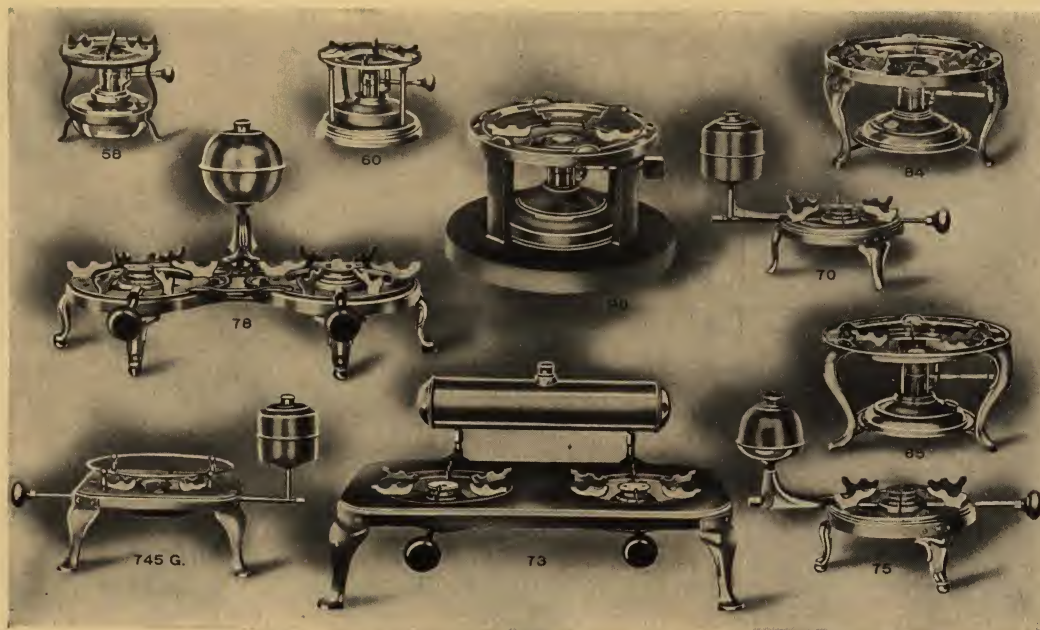
Another style of "Simplex" ironer.



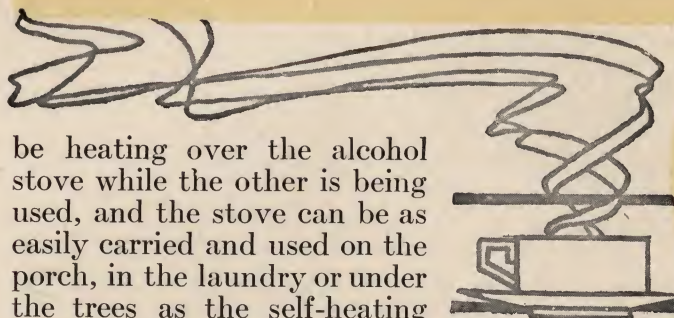
Clothes dryer made by the Iowa Gate Co.,
Cedar Falls, Iowa.



Asbestos Sad-irons made by The Dover Mfg. Co.,
Canal Dover, Ohio.
"The iron stays hot—the handle keeps cool."



Types of Denatured Alcohol Stoves made by Manning, Bowman & Co., Meriden, Conn.



be heating over the alcohol stove while the other is being used, and the stove can be as easily carried and used on the porch, in the laundry or under the trees as the self-heating irons could be. It uses no

more, indeed probably not as much alcohol, and the ironing can be better and more easily done, as the sad-irons are heavier, better and safer to use. The same is true of the nicked flats having iron cores which may be heated in the same manner. The heating is more quickly done when either a sad-iron heater or an adjustable oven designed for use on such stoves is used, this holding and preventing radiation of heat.

The denatured alcohol stoves and apparatus have many practical and delightful uses. Denatured alcohol is a safer fuel than gasoline, a cleaner one than kerosene and much less odorous, and its cost is but little more. We are apt to reckon cost by the amount paid for a gallon of gasoline as against a gallon of alcohol, or a ton of soft as against a ton of hard coal. The fact is that this is not the actual measure of the cost. To begin with, a ton of good hard coal produces more heat units than one of soft, and there is less loss. Then the second cost should be reckoned in, the expense of caring for the apparatus and the cleaning resulting from the use of a dirty fuel.

Denatured alcohol is clean. It does not smoke nor smell, and with the good apparatus now made, is safe. There are single burner and several burner stoves on which portable ovens can be used as well as any kind of cooking utensil. On the stove any kind of coffee and tea pots may be used, but with the growing custom of making coffee on the dining table and in the drawing-room and of serving



Coffee Percolator made by Manning, Bowman & Co.

breakfast, luncheon, suppers and Sunday night teas in various rooms and porches, the alcohol and electric coffee-pots, the alcohol tea-ball teapots and samovars, chafing dishes, etc., are much in demand.

The tea-ball teapots are a great improvement over the old strainer, for the tea, being suspended in the water in the perforated ball, can be drawn up and held against the cover as soon as the extraction has proceeded to the desired point. This means better tea, no long steeping nor boiling, no bitterness, and yet demands no removing of the strainer. The ball merely hangs close under the cover out of the way, until its use is demanded again. Both coffee and tea pots come in nickel, copper, and aluminum and in different designs. One can have a coffee-pot with a vapor lamp so it can be used alone, and also a teapot the same, or if preferred, a one burner alcohol stove on which either tea or coffee pot can be used. The lamps of the coffee and tea pots are regulated in a different way than the burners of a stove, and the use of alcohol is less. Unless there is need of saving space it is better to have a stove, a complete coffee and tea pot, and use other utensils on the stove when need arises.

The same firms that make many of these devices manufacture other labor-saving utensils as well. It is sometimes questioned whether bread mixers make as good bread as can be kneaded with the hands, but the question of labor saving where a quantity of bread is to be made, cannot be raised. In families where two loaves of bread are made at a time, a bread mixer may not be needed, but where eight or more loaves have to be mixed the work is different. Even in the places where two loaves are sufficient, the cake mixer may be taken as conforming to the definition of a labor-saving device, and in both cases the gain in cleanliness should be considered as a sanitary feature.

For the majority of women the creaming of butter and sugar with a spoon is not an easy task and cake mixing is considered by many to be hard work. The use of the cake mixer reduces both time and energy expended and in this same mixer may be beaten and kneaded a small quantity of bread.

This is the place to speak of a recent product from one of these houses, namely, aluminum handled knives. These knives are made of the best steel and have aluminum handles welded to the blade. This makes a light indestructible knife, for water cannot injure these knives as it does the wooden handled ones. These can be purchased singly, but they come in an assorted set including a carver, a saw-tooth bread knife and assorted vegetable and meat knives.

As yet no dish washer has been made for ordinary household use which can be called a labor-saving device. The time and labor spent in handling dishes is reduced by the use of such a device as a wheel tray by which all the dishes can be taken to and from table, pantry or sink at once, more than by the use of the dish washer. No washer ever devised cares for the most difficult things to clean, the cooking utensils. A man in planning office or factory selects those few devices which will facilitate the business to be done, and argues that a straight line is the shortest distance between two points. He, therefore, groups things and makes a studied selection of equipment. This the woman should do in her housework. Then what are the essentials?

A kitchen cabinet is needed, for in this can be kept all the dry supplies for cooking, in bins, or glass jars and bottles clearly labeled; those utensils which are needed for the mixing and preparing of food for cooking, a supply of towels, the rolling pin and board, and if the cabinet have an extension top it forms the table as well as place for storing things. This will save the woman countless steps to and from the pantry and to the table and back again. In the drawer of this cabinet, among the usual cooking utensils, what is called a Helping Hand should find a place there. A Helping Hand is a device whose name describes it. It consists of four heavy wires bent at the ends to form short right angles. These wires



Kitchen Cabinet—A labor-saving and space-saving device. Every utensil and material necessary for cooking is at hand and within easy reach. This cabinet is made by the Hoosier Mfg. Co., New Castle, Ind.

come together at the handle and being held in such a manner in a piece of nicked steel, as to open and close in the manner of scissors. Two finger holes form the handles and with this little hand an egg can be lifted out of boiling water, a hot plate from the oven, preserve jars from a kettle of water or a baked potato from the stove.

Among other things, the kind of apple corer one selects to use indicates a sense of the fitness necessary for the work to be done. There is a perforated cover so made that the core pushes out through the top and drops down into the dish instead of having to be prodded out with fork or skewer. With another little corer recently put on the market, apples after being cut in halves, may be cored with the greatest rapidity. This corer can be used for such uncomfortable tasks as removing eyes from pineapples, the cutting out of decayed places in fruit or vegetables and the preparing of tomatoes for stuffing.

Perhaps the most talked of labor-saving cooking device made in recent years is the fireless cooker. The fireless cooker may be a square or oblong box or one of cylindrical shape. For sanitary reasons it should be metal lined and contain no cushions. There may be as many compartments and utensils as required for the work to be done. There are some small fireless cookers designed for the cooking of cereals or some one thing of that kind only. These are made without extra heating disks, but when used

rightly do the work for which they are designed perfectly well, and they are light and portable, taking up but little room. In selecting a cooker care should be taken to buy a well built one lined with proper material, and the best cooking utensils for use in the fireless are those made of aluminum. Aluminum is one of the best heat retainers known, hence particularly adapted for use in the fireless. The arrangement of heating plates should be considered, for the best results in baking are apt to come when the disk is suspended from a frame over the utensil in which meat or some such thing is to be cooked.

The development of the fireless cooker has been rapid; some electric cookers are used now and there is a fireless cooking gas stove. This consists of an insulated oven heated by gas and a gas stove top with burners so arranged as to be used for fireless cooking. These burners, in place of being adjusted below the surface of the stove, are raised above its galvanized iron top and over any one or two of these, if desired, may be adjusted an insulated hood. This hood is hung on a weighted arm in such a manner as to make easily possible the swinging or adjusting to any position. The cooking is done by retained heat as in the fireless cooker. That is, the gas in the oven is lighted and when the oven is sufficiently hot the roast or bread or whatever it may be, is put in, the door closed and the gas turned off. Experience will teach if it is necessary to relight the gas and reheat again after a period of time, although such explicit cooking directions come with the device as to preclude the necessity of much experimentation. Those things which are to be cooked by boiling, or are usually cooked on top of the stove, are put over one of the gas jets and brought to boiling point. The gas is then turned off and the hood pulled down over the utensil just as it stands on the gas burner. Then the cooking proceeds by the retained heat.

The question of cooking utensils—of what they should be made—and what equipment is required for the kitchen is always one of moment. Shall I buy enamelware cooking utensils or shall I buy aluminum cooking utensils cannot be answered in either case with an unqualified yes. There is necessarily a place for several kinds, aluminum, enamel, earthen and wooden ware, glass and even tin. And all women have prejudices or *feelings* about certain things whether justified by reason or not.

The removal of all waste matter from the house as quickly as possible also involves the collection and removal of garbage, ashes, etc. A practically small family garbage consumer is still being asked for. There is a good gas-heated consumer, which is much used in small hotels, schools, hospitals, etc., but no practical small stove affair. So garbage must be collected and carried off, and yet flies kept out and away from the house. One particular underground garbage re-



The Sections make it easy to handle.

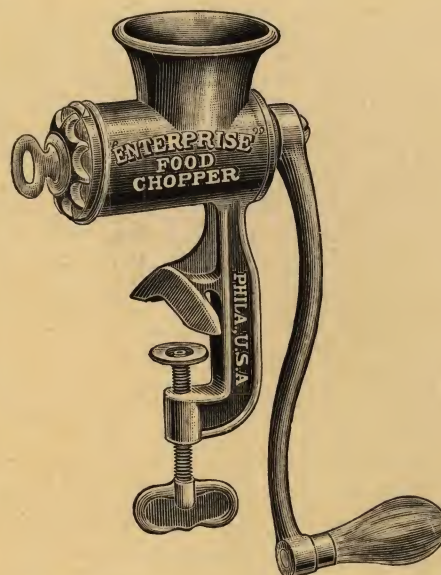


The Cooker and its parts.

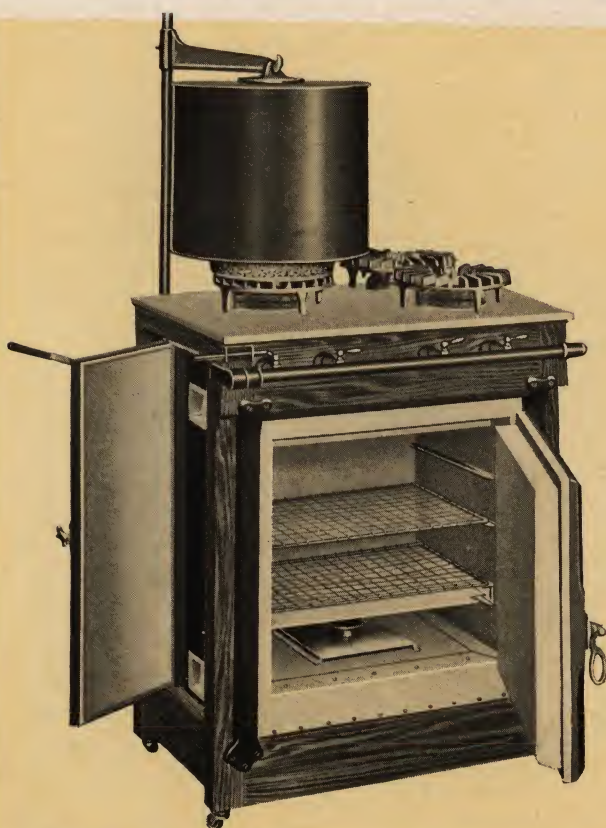
FIRELESS COOKER MADE BY THE STEPHENS MFG. CO., BUFFALO, N. Y.



Enameled Churn made by Enterprise Enamel Co., Bellaire, O.



Food Chopper made by the Enterprise Mfg. Co., Philadelphia, Pa.



Fireless Cooker made by the Chambers Mfg. Co., Shelbyville, Ind.



Wheel Tray made by the Wheel Tray Co., Chicago, Ill.

ceiver is buried in the ground, thus avoiding the present unsightly and injurious effects of wooden boxes, etc., now so generally used. There is absolutely no chance of spilling garbage between barrel and receiver, as the chute empties directly to the barrel, whereby the existing unsanitary conditions and odors are entirely overcome.

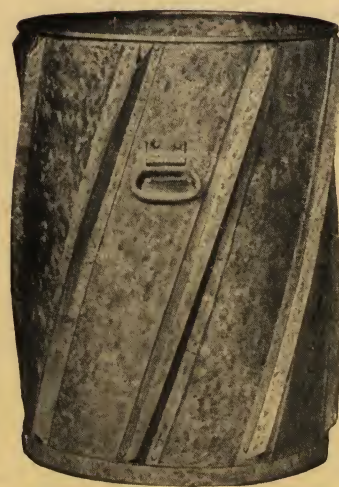
There is also an underfloor refuse receiver which can be used in the cellar floor or in the garage or stable, with the result that danger from disease is eliminated and the other objectionable features which usually exist are removed. Another point in favor of these receivers is that they will not freeze in winter.

Ashes are clean, yet they make dust and they are matter out of place when kept about the house. For those who sift their ashes, there are exceedingly good sifters so made as to prevent the filling of the air with the fine dust which comes from the sifting. And ash barrels are now made so as to be practically indestructible unless used with the utmost carelessness. A most excellent ash barrel now on the market is a spiral truss-ribbed barrel which has many advantages that will appeal to the householder. In the first place, being cylindrical, it presents a surface free from obstruction, which is a great point in its favor, as it leaves no place for germs to breed. It also has a rolling edge at the bottom which makes it easy to manage when transferring from the house to the sidewalk.

Space will not permit a long list of labor-saving devices, and only some of the most important have been mentioned here.



The Stephenson Underground Garbage Receiver, a sanitary and convenient device for storing garbage. Made by C. H. Stephenson, Lynn, Mass., and sold direct.



An Ash Barrel given extra strength and service, without excessive weight, by spiral truss ribs. Made by C. H. Stephenson, Lynn, Mass., and sold direct.





The Refrigerator and the Refrigerating Plant

Illustrated by Leading Manufacturers



VERY necessary adjunct to the modern house is the refrigerator and the development of this article in recent years has kept pace with the increasing knowledge of the principles of hygiene and sanitation. The old-style wooden box with its poor circulation and leaky bottom has long ago been discarded. In its place there is a scientifically constructed apparatus that does much for the health and comfort of the family.

The first thing to consider is the location—for an ice-box is like a coal bin—it can't be placed just anywhere if you want the best results. The size of the family will, to a large extent, determine the size of the refrigerator. In a new house it costs but little more to have one built in. Most manufacturers nowadays have a special department for this class of work, which is at the service of their patrons, and it is well to consult them about it, as their experience has taught them much that is of value, and they can arrive at the proper solution much quicker and cheaper than a less experienced person.

Having settled that point, the next thing to consider is the type you will select—whether natural ice or artificial refrigeration. Both types are good and locality and convenience will govern which to buy. If you can obtain natural ice, as desired, it is cheaper. In this case it is very essential to locate the refrigerator so that its supply door is on the outside readily accessible to the iceman at all times. He can then make his visits regularly, keeping the supply uniform, at no inconvenience to the housemaid, as would be the case with an inside location, requiring admittance to the house for this purpose. Even if away for a few days and the house locked up, the ice supply can be kept going just the same. In winter, the ice door can be left open and refrigeration obtained without the use of ice at all.

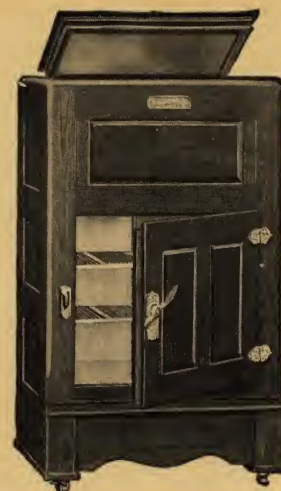
In the case of refrigerators mechanically cooled, where the refrigerator is cooled by means of a refrigerating plant, almost any well-insulated box may be used, provided the size of the coil chamber is so arranged as to allow of the installation of cooling coils therein.

The refrigerating plant may be installed in the basement or at any convenient point, even in the garage or some outbuilding. In private residences, electricity is usually the motive power used to drive the refrigerating plants, but if there is no electricity available the plant may be operated by means of a gas, gasoline or steam engine, the latter, however, being the most economical and convenient installation for private yachts, large hotels, etc.

Each refrigerator in the mechanically cooled type is fitted with a coil of pipe

through which ammonia is expanded, producing a very low temperature in the box and insuring the operator also of a dry and sanitary storage compartment.

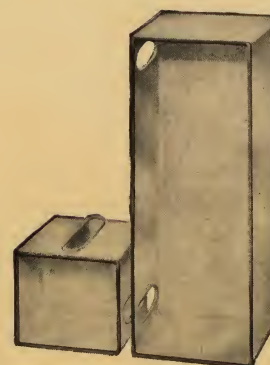
In case a very small quantity of ice is required for table purposes, by means of a specially designed refrigerator 10-20 pounds of ice may be made by means of cans let down in the top of the box. Where the ice requirements are larger, however, a special ice-making set is installed in the machine room with the plant. The cost of installation of the ice-making and refrigerating plant is of course considerable. On the other hand, there is a great saving of power against ice bills, and when the consumption of the latter is on a large scale the manufacturers claim that mechanical refrigeration, considering the investment and all operating expenses, is ultimately cheaper—to say nothing of conven-



Refrigerator made by the Baldwin Refrigerator Co., Burlington, Vt.



Refrigerator, showing seamless provision chambers with enamel on steel or opalite glass lining. Made by the McKee Refrigerator Co., Brooklyn, N. Y.



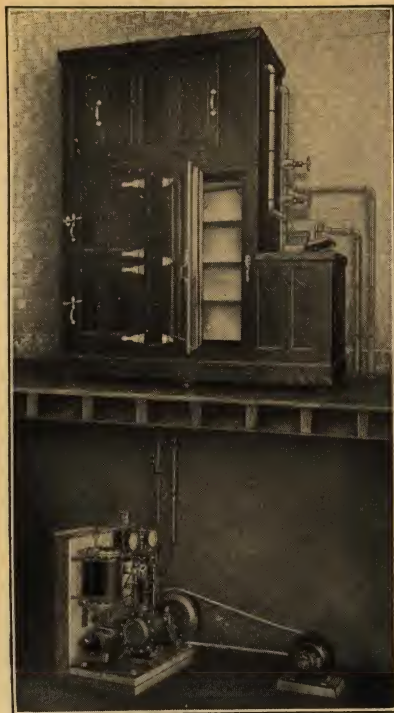
Provision Chamber.

ience and sanitation. This must, however, be decided by individual cases, but it is well worth investigating by any one building or rebuilding.

After the type has been selected, the next important thing is to consider the lining of both food and ice chambers. They should be non-corrosive, non-absorbent, and free from joints and sharp corners, making it easy to keep the inside sweet and clean. White is the preferable color for the food chamber, as it quickly reveals the presence of dirt, and non-corrosive metal for the ice or machine compartment.

The manufacturers of the higher grade refrigerators make food compartments with a perfectly smooth non-corroding surface such as solid porcelain ware, opalite glass and porcelain enamel on steel.

The Solid Porcelain compartments are snow-white, molded in one piece, $1\frac{1}{4}$ ",

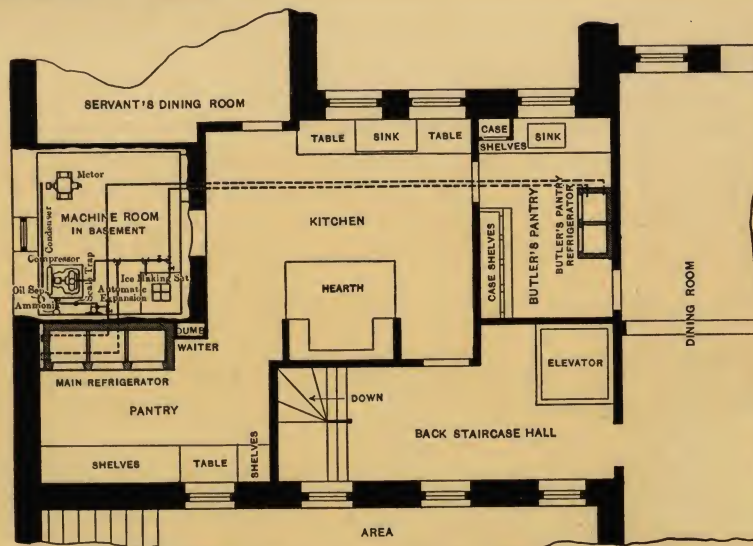


thick with all corners rounded. There are no sections, joints or uncleanable cracks, corners or crevices. They are provided with large openings for the circulation of cold air.

The opalite glass which is about $\frac{7}{16}$ " thick is a milk-white opaque glass, beautiful in appearance and has the same smooth non-absorbent surface as plate glass and is placed on the walls and bottom of the provision chambers in large sheets and the joints made water-tight with pure cement.

Porcelain Enamel on Steel is equally non-absorbing and sanitary and is practically indestructible, as the porcelain is fused to the steel at a very high temperature. This lining can be put into the refrigerator either in sheets or in the form of a seamless chamber, the latter being the most recent development in refrigerator construction and obviously both sanitary and practical.

Insulation and proper circulation are the next important points, for it is the insulation in a refrigerator that determines whether it



The Brunswick Refrigerating Co., New Brunswick, N. J., show here two methods of installation recommended for the small refrigerating plant. The upper shows one of the smallest plants with a 20-lb. ice-making set built on end of box, the machine and motor being located in the basement. The floor plan of residence shows a medium-sized ice-making and refrigerating plant. The ice-making tank is located in a separate room in the basement with machine and motor, while pipes are run to the main and pantry refrigerators on the first floor.

will be an "ice-eater" or an "ice-keeper." Insulating materials are quite numerous and of practically the same value, if applied correctly. There is, however, a difference of opinion on this point. The best materials are cork, ground or compressed into boards, mineral wool, asbestos, and felt. These are used separately and in combinations. All of the best known manufacturers have their own methods of construction and, so long as you confine your dealings to a house with a good reputation, you are quite sure of getting a satisfactory piece of work, no matter which material you finally decide to use.

The matter of air circulation is equally important. The spoiling of food is caused by bacteria—small organisms that may be boiled to death but cannot be frozen to death even if the air in a refrigerator were cold enough to reach the freezing point. It is dampness that greatly increases bacterial growth; therefore a refrigerator should be dry and this dryness is secured by a good system of air circulation.

Another feature of refrigerator construction—most important for the sanitary condition of the refrigerator itself and the food it contains, as well as the health of the family—is the drain-pipe. The best manufacturers—here represented—have paid particular attention to this detail, with the result that the up-to-date refrigerator is very far removed from the old, leaky, ill-smelling ice-box of a few years ago. Drain-pipes are provided with a trap or device of some kind, differing in different makes—which prevents all warm air, sewer gases, insects, etc., from entering the refrigerator through the drain-pipe. The ice-pan drain-pipe and trap should be thoroughly cleaned once a week and some refrigerators are so constructed that the pipe can be easily removed for this purpose. Several makes of refrigerators have removable flues which can be easily cleaned by simply taking out the irons which make one side of the air passage and washing the flues. Others make their drain-pipes in one piece and large enough so that they cannot clog or overflow and are easily cleaned.

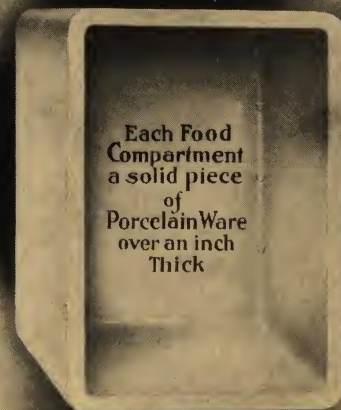
The shelf is another detail that requires attention, for a poorly constructed shelf means that the ice is not held in proper place or that the food particles can cling to it, causing dirt and germs to accumulate. Some shelves are made of steel bars—some of heavy corrugated galvanized iron for the ice, with substantial open-work wire shelves for food. The housekeeper should beware of shelves that obstruct circulation.

A necessary and economical adjunct of the modern refrigerator is the water cooler, by means of which ice water can be drawn from it by a faucet without exposing the water to the impurities in ice and air. The cooler is generally located at the back of the refrigerator, whence a water pipe leads down to the bottom of the ice chamber and then forward under the edge of the ice rail and through the side wall, where it ends in a faucet. This device insures one of being able to drink a whole-



Refrigerator made by the Monroe Refrigerator Co., Lockland, Ohio.

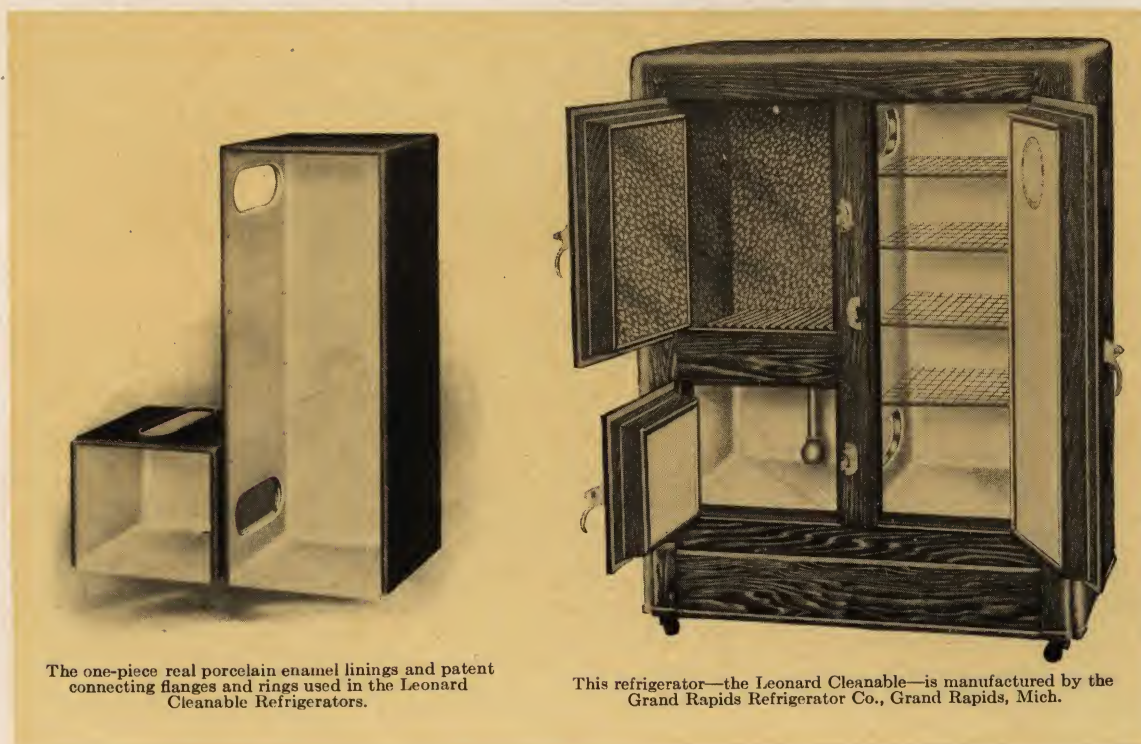
The Monroe



Each Food
Compartment
a solid piece
of
Porcelain Ware
over an inch
Thick

Is Never Sold at Stores

some, iced draught of water without wasting ice by chopping it into small bits to cool the water and thereby exposing it to possible contamination.



The one-piece real porcelain enamel linings and patent connecting flanges and rings used in the Leonard Cleanable Refrigerators.

This refrigerator—the Leonard Cleanable—is manufactured by the Grand Rapids Refrigerator Co., Grand Rapids, Mich.

DONT'S.

Don't put in hot, steaming, or over-ripe food or fruits.

Don't cover the shelves with paper or cloth and obstruct circulation, which has equally as much to do with preservative results as a low temperature.

Don't leave the doors open or ajar while carrying articles to or from the refrigerator, or while chipping off ice for domestic purposes. Better keep a small box for that purpose, and not rob the refrigerator, charging it all to ice consumption, and letting in the warm air.

Don't starve the refrigerator. If its ice capacity is 75 or 100 lbs., don't expect it to run perfectly with 10 or 15 lbs., supplied irregularly.

Don't put it in a cellar, laundry or other damp place, or on a porch exposed to sleet and atmospheric changes. It is made of kiln-dried lumber, and not guaranteed unless properly used.

Don't cover the ice with cloth, newspaper or other material to save ice, the function of which is to cool the refrigerator and create a circulation. Such a course may "save ice beautifully," but if you bottle up the cold air it cannot do its work, and your food will spoil. If you use newspaper you must expect the "sickly odor of printers' ink," and decaying paper, and the waste-water outlet to become blocked.

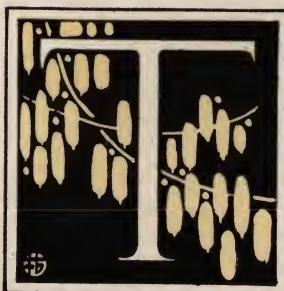
Don't ignore these common-sense rules, and complain because the refrigerator smells musty, the drip pipe or trap becomes choked up, and water overflows into provision room, or doors swell and joints open because the dry (not green) stock has absorbed moisture. The user can avoid the cause of these troubles, but the manufacturer cannot.



Greenhouses, Fruit Houses, Conservatories, Sun Rooms and Glassed-In Porches

L. W. C. TUTHILL

Illustrated by Leading Manufacturers



HERE has been a persistently erroneous impression that a greenhouse is a luxury that only the very rich can possess.

If you have been to England, you will recall the hundreds of greenhouses of all sizes you constantly saw there.

The Americans are fast getting hold of the fact that greenhouses are really delightful glass-enclosed garden plots, where you can "tend garden" all the year round. Instead of having one crop during the year, you can have no less than four. Flowers, vegetables, fruits, health, and no end of pleasure are what a modern, well-built greenhouse produces.

One greenhouse concern, appreciating that a snug little moderate-priced house would be welcomed by hundreds of garden enthusiasts, has recently put a practical one on the market for so small a sum as \$250. This price includes its entire equipment, even to the benches, boiler and heating pipes.

In thinking about buying a greenhouse, two questions at once come into one's mind: Where shall we put it? and How can we heat it?

If it is a small house, by all means locate it as near to your residence as feasible. Better yet, attach it directly to it. Have your glass-enclosed garden just as handy by as possible. Think of the added pleasure if you could walk straight into it from one of the rooms of your home. How much more care you could then give it! What a nuisance to have to "bundle up" to go to your garden. Of course, if you have a "man about the place" or a gardener he can attend to it. But even in that event you will want to garden a little on your own account. So have it handy by.

About the heating: Do not attempt to do it with your house boiler. A greenhouse needs heat the most at night, which is just the reverse of house heating. Try as you will, such a heating combination will not be successful. It never can be economical. Have an independent hot-water boiler for the greenhouse. This boiler has to be placed at least six feet below the level of the greenhouse walk in order to secure an adequate circulation of water. Should you attach the greenhouse to some existing building that has no cellar, then a boiler pit of suitable size can easily be made.

Many are attaching their greenhouses to the garage, and a good idea it is, as the boiler for one can then heat them both. If your grounds are limited in space, it has the advantage of compactness. (Cuts 1 and 4.)



(1) Erected by Hitchings & Co., Elizabeth, N. J. Leanto greenhouse attached to Mrs. Frances Hodgson Burnett's garage at Manhasset, L. I.



(2) Erected by Hitchings & Co. This greenhouse with its one gable, and entire equipment of benches, boiler and heating pipes, costs but \$250. It is made in sections and shipped knock-down. No foundations are needed, it being set on iron foot pieces.



(3) Interior of the house in cut No. 2. The owner, Mrs. F. H. Lovell, of Madison, N. J., grew endless things, from lettuce, tomatoes, and stocks, to orchids.



(4) Erected by Lord & Burnham Co., Irvington, N. Y. Curved eave, even-span two-compartment greenhouse with work room joined to the garage.

A good many greenhouses have independent workrooms, with a cellar for the boiler and coal. These workrooms are generally equipped with a bench on which to do the repotting and under which can be bins for extra soil, a place for pots, and so on.

And this brings us to the construction of greenhouses. Like everything else, it pays to buy a good one. You are then money in pocket in the end, both as to growing results and a freedom from repairs. The iron or steel frame houses are the best. Their endurance is practically unlimited, and being so much lighter and sunnier than wooden houses the plants thrive best in them. Some concerns build with narrow iron rafters placed eight feet or so apart, between which are bolted cross pieces of angle iron, upon which the cypress glazing bars are secured. One company encloses a portion of the glazing bars in a U-shaped piece of steel, which makes so strong a roof frame that no rafters are necessary.

By far the most important improvement in recent construction is the adoption of the curved eave, which makes a much lighter and more attractive house. The gutter in this construction being placed on top of the foundation wall, the snow has nothing to hinder it from sliding clear of the roof, a point of great importance, especially in sections where snows are heavy.

The least expensive form of Iron Frame House is the Leanto, which, being attached to some building or existing wall, obviates the expense of building a northern side.

In addition to the straight-roof, even-span house with curved eave, there is also the curvilinear roof (cut 6), which, because of its long sweeping curve, is especially pleasing.

Should you want to grow palms of the taller sort as well as fern trees and such tropical subjects, then a regular palm house having high sides will be necessary. The designs of palm houses are many. Two are shown here, one of the simpler type with wing houses attached to each gable; and a beautiful circular one, also having wing houses. (Cuts 7 and 10.)

FRUIT HOUSES

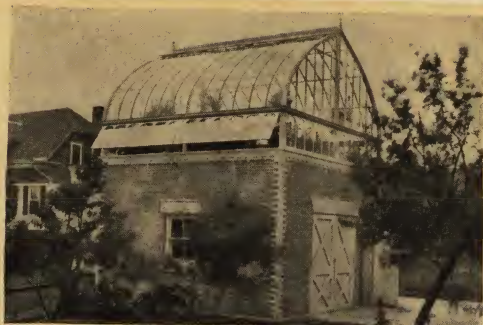
Growing fruit under glass is highly satisfactory and not nearly so expensive as it sounds. Grapes can be forced a month ahead of season in a cool house having no artificial heat. In a heated house you can have them from May until Christmas.

But by far the most fun of all is growing dwarf fruit trees in pots. Cherries, peaches, apples, plums, nectarines, pears, and so on, can be easily and economically grown. You start them up so late in the winter that it takes but little coal, and they are in the greenhouse so short a time that you can use the house for at least half the year for growing chrysanthemums, bulbs or vegetables.

Think of the joy of having a peach tree, five feet high, all in bloom in February and bringing it in for a house decoration! What fun to pick nectarines or peaches right from a tree in the dining-room!

CONSERVATORIES

And here is another happy, reasonable development; conservatories are no longer mere glass structures crowded full of potted plants—they in many cases



(5) Erected by Hitchings & Co., Elizabeth, N. J. Curvilinear Roof Greenhouse on top of garage. This is an unique, practical solution where ground space is limited.



(6) Erected by Lord & Burnham Co., Irvington, N. Y. Curvilinear Roof Greenhouse, 50 x 18 feet. It is divided in two compartments, each 25 feet long.



(7) Erected by Pierson U-Bar Co., New York. A very architectural group with a circular palm house and curved eave-wing houses. There are several more adjoining houses at the back out of sight.



(8) Erected by Hitchings & Co., Elizabeth, N. J. The strong winds that swept across Mr. Theodore Jackson's porch at West Hampton, L. I., made it unpleasant to sit upon a greater part of the time. Glassing it in was the happy solution.



(9) Erected by Hitchings & Co. This sun room has a steel frame work, giving a graceful curved top. Part of the roof can be elevated by a simple little apparatus, giving ventilation without draft. The large windows are pivoted at the centre and swing around.

open directly from the living-room and are used in part as such. Easy chairs, a table, soft lights, the tinkling of running water over a little rockery and all around you flowers—bloom-ing, growing flowers, giving of their fra-grance and comfort. This is the ideal con-servatory.

As with the greenhouse, the leanto is the simplest and least expensive and therefore desirable.

Build it at the same time you do your house, if possible, as it will save money for you. But even if it is added afterward, the greenhouse people can design it so no one would surmise it to be a so-called "addition."



(10) Erected by Lord & Burnham Co., Irvington, N. Y. A highly practical group of palm house and wing houses. The workroom is back of the palm house, being connected to it by a small propagating house.

SUN ROOMS

Some there are, perhaps, who do not particularly care for flowers, but thoroughly enjoy a room where the sun can pour in unhindered. These rooms are fitted up like out and out living-rooms with every comfort possible.

The room shown in cut 15 is built over a porch and opens directly from an upper hallway. In addition to the cheer of the sun, the open fire adds interest. Of course, such rooms can be heated directly from the residence boiler.

There is a health side to the sun room that is decidedly worth considering. There are several in New York, built on top of the houses. On one a doctor built a regular glass play room for his children. Think of the happy hours you and your children could spend in one of these sun rooms.

GLASSED-IN PORCHES

If you do not want to build an out and out conservatory, why not glass in your porch or a part of it? A small hot-water boiler costing, say, \$25.00, will heat a good-sized enclosure and burn but little coal.



(11) Erected by Lord & Burnham Co., Irvington, N. Y. Glassed-in porch of Mr. Leroy Frost, Nyack, N. Y. The sides are constructed in panelled sections that can be conveniently removed in the spring.



(12) Erected by Pierson U-Bar Company, New York. Separate greenhouse and workroom. The part of roof bars exposed to the inside of the house are enclosed in U-shaped steel, making a complete steel frame-work. The greenhouse is 18 x 25 feet. Workroom, 19 x 12 feet.



(13) Erected by Lord & Burnham Co. Ornamental curvilinear roof conservatory, fitting into a "jog" in the house and opening off the library.



(14) Erected by Pierson U-Bar Co. This is a snug little greenhouse attached directly to the residence. Quite the most economical way to have it.

By constructing the sides in panels or sections, it can be easily and quickly put up in the fall and removed in the summer. The greenhouse concerns are doing so much of this kind of work it only stands to reason they will insure to you the most satisfactory results.

By all means, have some kind of a plant-growing place. It will give you and those around you endless pleasure.



(15) Erected by Lord & Burnham Co. Leanto conservatory that is a veritable living-room joy spot.



Gates and Fences

Illustrations by Leading Manufacturers



IN the days when lumber was plentiful and cheap, wooden fences were practically the only kind used. Iron enclosures were considered a luxury, seen only around very pretentious grounds or public parks, and wire fencing was as yet an unknown quantity, so that the paling fence in town and either the plank or the rail fence in the country were the most familiar types.

With the rapidly growing scarcity of lumber, however, the wooden fence became prohibitive on account of its cost, and the woven wire fence, gradually evolved from the barbed wire variety, came into common use.

Every house, unless it is in a closely built town, must have its fence, and the fence must be an enduring one and in keeping with the general appearance of the place.

As much care and thought should be given to the selection of such a fence as to the appearance of the house itself. Many an otherwise attractive place has been spoiled in the making by an ill-chosen, and more often than not, an expensive fence.

Briefly speaking, the fencings you can purchase in the market all ready for immediate erection can be divided into two classes—the wire fence and the iron fence, or iron railings, as the manufacturers call them. The wire fence is of course the least expensive, but with its iron posts and various designs of wire treatment, is decidedly ornamental. In buying such a fence insist that the posts be galvanized, otherwise in a surprisingly short time they will rust off at the ground line in spite of all the painting you may do. Then there is a post that is braced by blade anchors much like the roots of a tree. Such posts are very easy to put up, as no digging of post holes is necessary. Simply make a hole for the post with a crowbar, drive it in place, and then drive down the anchors. Such a post, being set as it is in solid ground, is solid at the start and will always keep in perfect alignment. The doing away with the expense and torn up condition of the grounds in digging post holes is a strong point in favor of such a fence, as is also the speed with which it can be erected.

For the unpretentious cottage, where protection is desired without concealment, there is nothing better than the fence of wire in a plain rectangular or oval pattern, the wire forming a series of half circles by way of ornament along the top. A fence of this sort is rust proof and is said to last from twenty to thirty years. The posts and top rails are strong but of small size, giving a light and graceful appearance and, if desired, the posts may have ornamental tops or balls. This style of fence is made in a variety of heights, from the six foot enclosure for country



A wire fence that is unobtrusive, yet effective. Posts are galvanized. Photo was taken eleven years after erection. Made by Anchor Post Iron Works, New York.



Tennis back-stops and fencings with galvanized iron posts and light iron top rails are certainly preferable to the ones with heavy wooden posts and rails that soon get out of line and require yearly repairs. Made by Anchor Post Iron Works, New York.



A non-climbable fence that will defy both animals and man. It is a thorough protection. Made by Anchor Post Iron Works, New York.

estates, where height is a necessity, down to a two and one half foot size, suitable for lawn borders. Trellises for porches and borders for flower beds can be had in the same designs.

Where a wire fence is not desirable, but an enclosure of some sort must be had, the three or four rail fence made of one-inch pipe with galvanized pipe posts is satisfactory and easy to put up. A still less expensive lawn fence has top rail and posts made of one-inch pipe with heavy wires in place of the lower rails.

Should you want a wire fence that will be an absolute protection from any animals crawling through it or persons climbing over it, there is one made with a wire chain link mesh which is topped by two rows of barbed wire strung on overhanging supports, and extending to the inside of the grounds. For the protection of your garden and orchards such a fence is admirable.

Gates for all of these fences have iron frames and hinges and are made of the same pattern wire netting as the various styles of fencing with which they are used, but equally suitable are gates made entirely of iron, with posts rather more ornamental than those of the fence itself.

Iron fencing is of course more expensive and of much greater variety in design as well as in price. Unless a special design made by a competent architect is to be followed, the best rule to remember in selecting an iron fence is that the plainer it is the better. Probably the finest example of an iron fence in this country is the memorial fence around the Harvard campus at Cambridge, with its tall panels of severely plain bars between square pillars of brick, the whole in splendid proportion.

The simplest form of iron fence is the railing made of straight bars slightly pointed at the top, with posts that are quite plain or finished with a small ornament. The fence is held in place by an anchorage consisting of two large stakes which are bolted to the bottom of each post and securely tamped with earth. Cast-iron bases imbedded in the ground to a depth of several feet are also used to secure the posts, and for fences of this sort that have no visible foundation the gates are usually rather light in construction and follow out the simple design of the railing, with square gate posts in an open-work effect topped with balls or wrought-iron ornaments. For large gates, however, massive pillars of brick or stone are suitable even if these materials have not been used in the construction of the fence.

An iron railing set in a concrete base is generally considered much handsomer than the plain iron fence and gives greater opportunity for elaborate gateways and posts. The concrete may be merely a base, or it may be high enough to form a wall topped by an iron railing. In any event the base, whether high or low, should be continuous. If blocks of concrete or of stone set in the ground are used as supports for the posts alone, they are apt to settle on account of their weight or to be shifted out of plumb by the action of the frost.

Nothing is more fitting for large grounds, extensive lawns or country places than the fence made of brick or brick and stone, and a heavy iron railing. There is an appearance of dignity and solidity about it that is not to be found in an all-iron fence, no matter how imposing the latter may be. A low brick wall with a stone coping that acts as a base for the iron railing is always satisfactory and appropriate, and for beautifully kept grounds such a fence with square stone-capped pillars of brick between the panels is particularly suitable.

Enclosures of this sort require gates of massive appearance and elaborate design, all of them as a matter of course being the large double gates for the driveway, with sometimes the smaller gate for pedestrians at one side. For the ornate fence made entirely of iron the gate posts are generally stone monoliths or are built of square stone blocks, or there are posts of elaborate design that distinctly add to the handsome appearance of the gate.

Many of the taller gates are surmounted by an arch of fancifully wrought



A group of fences made by the F. E. Carpenter Co., New York.



A light, transparent wire fence, made by the F. E. Carpenter Co., New York.



An attractive fence, made by the F. E. Carpenter Co., New York.



An attractive entrance gate, made by the F. E. Carpenter Co., New York.

iron in which the name of the place is sometimes worked out, or a monogram in raised letters appears on an escutcheon in the center of the arch, and a single initial surrounded by a heavily carved wreath is used as an ornament for the stone pillars. These heavy pillars lend themselves quite effectively to various kinds of ornamentation, preferably lanterns of wrought iron and glass. Some of the more massive posts, it is true, are topped by nothing more fanciful than a stone ball, while the heavy brick pillars are often seen with only a substantial coping or a stone vase that harmonizes well with the design of its pedestal.

The lanterns are of all shapes and styles, corresponding in general effect to the iron work of the gates. They are usually placed on top of the posts but occasionally are fastened as brackets to the front, leaving room on the top for a stone ornament. Many of the more elaborate gates do not swing directly from the stone pillars but are attached to smaller wrought-iron posts set just inside the heavy stone ones.

Fences for gardens give rather more latitude in choice of style than those for yard or lawn, as the garden is not so conspicuous and there can be less regard for its surroundings and more individual taste in its arrangement.

For the old-fashioned garden in which no attempt is made at formality nothing is more suitable than a regulation picket fence, painted white. It may be a row of



An iron fence or railing of simple, neat design, that if given an occasional coat of paint will last a lifetime. Made by Anchor Post Iron Works, New York.



Ornamental iron railing and gateway with brick and stone posts and continuous foundations. Made by Anchor Post Iron Works, New York.



The dignified, unpretentious lines of this gateway recommends it. Made by Anchor Post Iron Works, New York.



How consistent are the graceful lines of this iron fence and brick pillared gateway as an enclosure for an extensive formal garden. Made by Anchor Post Iron Works, New York.

palings of the simplest sort, or it may be a more ambitious attempt designed after some of the well proportioned Colonial fences, but in either case it will be an appropriate setting for the tangle of lovely old-fashioned vines and flowers. In point of picturesqueness the stone fence is by all odds the most suitable for a garden. The dry-laid fence built of stones carefully fitted into place, like the old stone fences seen all through New England, is preferable, although the wall made of stones put together with mortar is quite effective if care is taken to keep the design from being too regular.

A red brick wall is always an attractive enclosure for a garden of any sort, while a low wall of brick with a row of palings on it, and a little wooden gate swung between square brick posts, is one of the most satisfactory ways of fencing off the bit of ground given over to flower beds and gravelled walks.



An entrance gate designed and made by
the Detroit Architectural Iron
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THE painting of the house makes or mars the beauty of the home. It must harmonize in color with its surroundings—like a gem in a setting.

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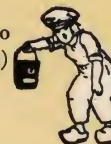
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Many of these color plates are taken from our Style Book of Home Decoration, a portfolio containing twenty beautiful color plates prepared by our Decorative Department. Among these color plates there are several suggestions for each room in the house as well as many ideas for exterior decoration. Very complete specifications are given for producing all the effects shown and in the book itself will be found many valuable hints for home decorating and home up-keep. This Style Book, together with the twenty beautiful color plates will be sent to you upon receipt of five cents to cover the mailing.

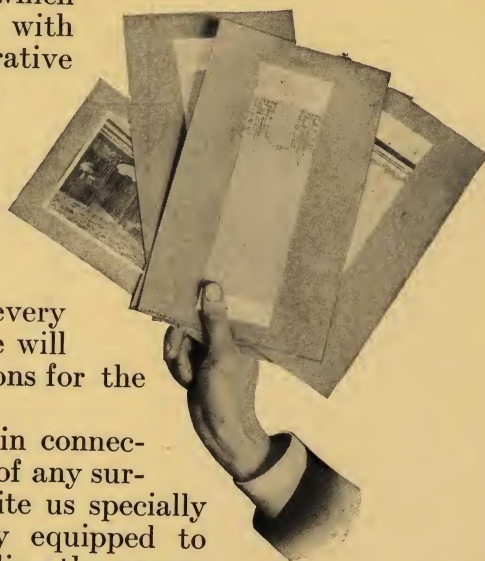


OUR SPECIAL DECORATIVE SERVICE

In connection with the building or decorating of a new home or even the remodeling and finishing of a single room there are many little questions which

develop regarding the treatment of the ceiling, walls, woodwork, and floor surfaces. Often times expert advice and assistance is required and it is for this purpose that we maintain a very complete Decorative Department. If you find after looking over the color plates shown in this book or the color plates in our Style Book of Home Decoration that it is not possible to select suitable color schemes for any part of your decorating we want you to ask for this special decorative service which will be rendered to you absolutely free of cost. We have prepared a special information blank which we will be glad to send you, together with further information regarding our decorative work, or you can explain the conditions surrounding your work by letter and send us at the same time a set of blue prints or rough pencil drawings. Upon receipt of this information our decorators will make a special study of your work, and prepare definite suggestions in the way of color elevations made in the actual material for every room in your house. In addition to this we will prepare diagrams showing several suggestions for the treatment of the exterior.

If any little difficulties should develop in connection with the specifications or the finishing of any surfaces about the home we hope you will write us specially regarding them. Our decorators are fully equipped to give you very explicit information regarding the proper treatment for any kind of surface whether it be ceiling, walls, woodwork, floors or furniture. You may have an old chair which you wish to restain or varnish, you may have a floor which needs attention, or possibly you may wish to remove the wallpaper in certain rooms and apply a rich flat painted finish such as S-W Flat-tone. It is all such questions as these that our decorators are prepared to handle. You will find this service a most valuable help and we hope that you will take advantage of it.



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Our decorators have prepared a two hundred page book entitled "Your Home and Its Decoration" in which the best of their valuable experience has been incorporated. This book contains twelve handsome color plates and over one hundred and thirty duotone illustrations. In the first part of the book, the most important principles covering both exterior and interior decoration have been brought out and illustrated. It is at this point that the other books on the subject of home decoration end but "Your Home and Its Decoration" is more practical and goes further. It contains several chapters in which you are told just exactly how and what materials to use in order to obtain the effects and decorative schemes described. This is helpful to you, no matter whether you are building a small cottage or a very elaborate mansion. Exact specifications for walls, woodwork, floors and for every other surface treatment are given. The price of this book is two dollars — postage fifteen cents extra, and if you cannot secure it from your local bookstore you can get it promptly by sending your remittance to the Sherwin-Williams Co., Decorative Department, 601 Canal Road, Cleveland, Ohio.

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“MODERN ACHIEVEMENTS IN HEATING AND VENTILATING” is the title of our latest Kelsey booklet which we should like to send to you.

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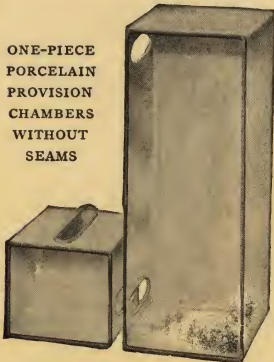
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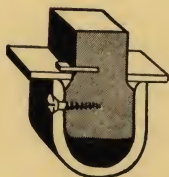
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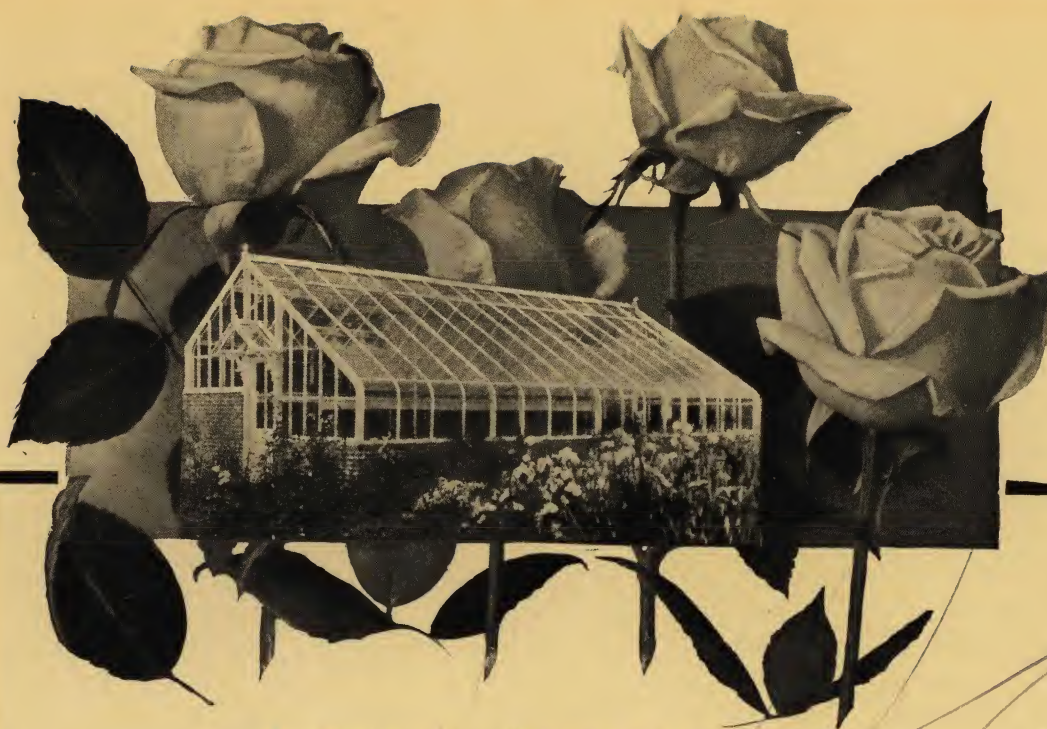
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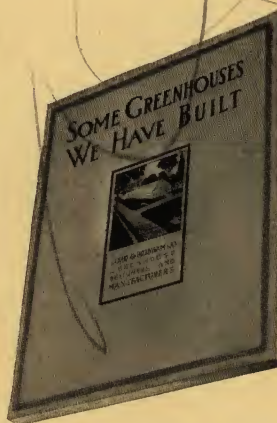
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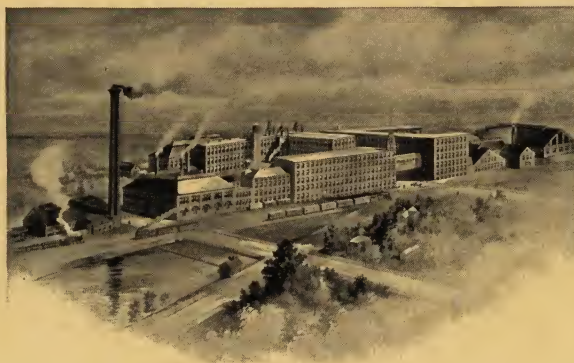
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Crittall's Metal Casements

demonstrate that metal sash has definitely replaced wood in modern building requirements, and to ignore this fact is to forget, not only present needs but future values.

Crittall's Metal Casements are of two kinds—Self-Contained and "Economic." The Self-Contained are used in buildings where fire-proof construction is the first and last word. The materials may be of solid Bronze and Koperoid Steel, and in neither case is there any cost for upkeep, as they are rust-proof and require no paint. This economy is in favor of Crittall Casements. In Public Buildings, Hospitals, Colleges, etc., the Self-Contained Steel Windows are indispensable for purposes of light-saving, fire-prevention, absolute exclusion of weather and permanency.

Crittall's Economic Casements

have been specially designed as a less expensive alternative for use in buildings not primarily fireproof. They lend a picturesque and attractive exterior and are wonderful aids to health because of the extreme light and ventilation they afford. These are also invaluable for stores and shops where a good outside impression is desired.

The "Economic" consists of a metal frame hung to wooden jambs making contact against metal strips all around. Without limit of size or style they are practicable for dwellings of fine or modest pretensions, easily opened and closed, water and weather and rust-proof, they allow ventilation up to 100 per cent. Any carpenter can erect "Economic" Casements. Special instructions are sent with every consignment.

Whatever your building plans, let us send you our Casement catalog before you decide. It contains suggestions for glazing, use of the Fenestra Joint, etc. Details of erection; estimates furnished.

Also manufacturers of "Detroit-Fenestra" Solid Steel windows for Industrial Buildings



The interior view of the E.W. Clark Residence, Chestnut Hill, Phila.

Geo. T. Pearson, Architect, Philadelphia

Detroit Steel Products Co.,

Dept. 29, Detroit, Mich.

SARGENT

Hardware

combines distinction in appearance with solid worth.

Its artistic designs add to the beauty and appreciable value of a building. Its wearing quality, founded on fine metals and thorough workmanship, eliminates repair bills and assures satisfactory service.

Give your personal attention to the selection of hardware for your home. The pleasure of having artistic and harmonious fittings will alone repay you.

Sargent hardware offers wide latitude for your personal taste within harmonious bounds. It includes many designs in each school and period of architecture.

The Sargent Book of Designs

is mailed free. Write for it. It contains many illustrations and helpful suggestions in selecting building hardware. A Colonial Book is also sent on request.

SARGENT & CO., 92 Centre St., New York

Sargent Locks are famed for security

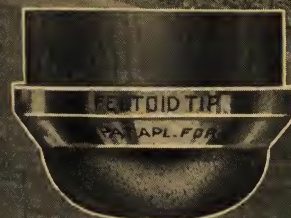
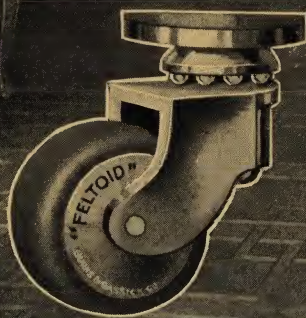
Keep Your Floors Beautiful and Unscored and Your Rugs New and Lasting by Using "FELTOID" CASTERS and TIPS

You pay \$40 to \$400 for your hardwood floors, and \$25 to \$25,000 for your rugs—isn't it far wiser and the greatest possible economy to invest a few dollars more in equipping your present furniture with "FELTOIDS" (not buying new furniture under any condition unless "FELTOID" equipped) and thereby insure your floors and rugs from damage and destruction. Furniture "FELTOID" equipped may be dragged over hardwood floors, rugs, and tiling without even scratching the floors or injuring the covering, because "FELTOID" Wheels and Tips are made of an indestructible, resilient substance which serves as a cushion tread, receives and absorbs the impact, *and affords absolute floor and rug protection.* "FELTOIDS" never scratch, never mar, never stain—are noise-proof and wear indefinitely.

If you only knew how far superior they are to unshod chair and table legs, and the old-fashioned, relentless hard-wheel casters, you wouldn't be without them. Try them. Your dealer will supply you. Insist on the Genuine with "FELTOID" stamped on every Wheel and Tip for your protection

The Burns & Bassick Co.

Sole Manufacturers Dept. T. Bridgeport, Conn.

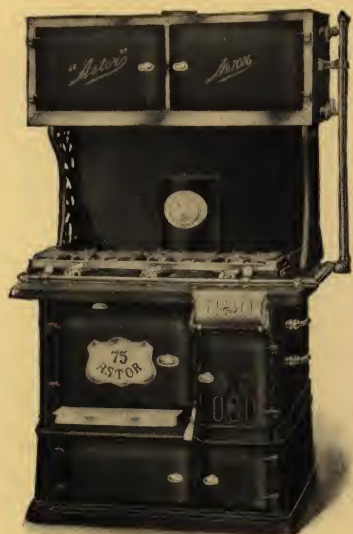


"ASTOR" COMBINATION COAL AND GAS RANGE

Patented, June 21, 1910

MAKES COOKING A DELIGHT ALL THE YEAR ROUND

THE ONLY MECHANICALLY PERFECT TWO-FUEL RANGE



"ASTOR" COMBINATION COAL AND GAS RANGE

The desirability of having the two means of cooking, coal and gas, in modern homes, has resulted in the invention of the "Astor" Combination Coal and Gas Range, a construction of simple, compact style, affording the best conveniences for superior results with either coal or gas fuel.

All other designs are at best makeshifts, for the reason that this company controls patents governing the mechanical features.

The advantages of this style of combination range over all others are as follows:

1st:—The gas ovens are at the most convenient height for use; no stooping required as with a side gas attachment.

2nd:—The two ranges, coal and gas, occupy only the space of the coal range, making a great saving in a narrow kitchen.

3rd:—The mechanical features are perfect. A child can operate it; no leaking; no rubber tubing is used.

Builders and architects are unanimous in praise of this construction. Evidences are many, where this combination has been the deciding point with homeseekers in buying a house.

"Astor" Stoves and Ranges, Gas Ranges, Hot-air Furnaces and Steam and Hot Water Boilers are *the best*.

THE UNION STOVE WORKS

70 BEEKMAN AND 66-68 GOLD STS.

NEW YORK



"DEATH RIDES
ON EVERY
CLOUD OF DUST"

"LITTER" lies on the floor; "DIRT" is trodden into the carpet; "DUST" is set flying by broom or brush; and that "DUST" breathed into the lungs spells "DISEASE"—often "DEATH"—AND THE BABY, PLAYING ON THE FLOOR, GETS THE WORST OF IT! But when you install the

Santo
Perfection
Vacuum Cleaner
THE ONLY CLEANER WITHOUT RUBBER

you will find that

THE LIFE-SAVING "SANTO" BREATHES IN all the dangerous dirt—protecting the family health.

THE MONEY-SAVING "SANTO" WORKS with economy, at the cost of only two cents an hour for electric current.

THE NEVER-TIRED "SANTO" CLEANS HOUSE—the Floors, Carpets, Rugs, Radiators, Walls, Windows, Furniture, Upholstering, Draperies, Books and Shelves. It BREATHES into corners and hard places not get-at-able by any other means. No more backaches from sweeping or detested "house-cleaning" seasons.

THE SILENT "SANTO" WORKS by electricity and keeps the house REALLY CLEAN ALL THE TIME. Without raising the least dust, it quietly extracts the unseen dirt from way down in the nap of the fabric and conveys it to a safety bag inside the cleaner, from which it may be taken and burned.

THE DURABLE "SANTO" is built to last a long lifetime, and the Company GIVES A BOND GUARANTEEING it perpetually against defect in material and workmanship.

THE PORTABLE "SANTO" is made to move easily from room to room where it may be attached to any electric light socket, and then does all the work itself—you simply push the nozzle to and fro.

THE "SANTO-DUPLEX" is the STATIONARY "Santo" cleaner, built for cellar installation. It may be run by electricity, gas, gasoline, or water motor. No special foundation is necessary, therefore, you can "pipe your house" for it at small expense.

THE "SANTO" POWER PLANT is a small gas engine and dynamo attachment that may be installed anywhere and which will produce current for operating sewing machines, washing machines, churns, as well as the Portable "Santo" Vacuum Cleaner.

Send for booklets, "The Dustless Home" and the "Santo-Duplex Vacuum Cleaner."

KELLER MFG. CO.

2049 ALLEGHENY AVENUE

PHILADELPHIA

Some desirable territory still open for agents

A HOMELAND WITHOUT A PEER



A decade ago if you had predicted that a few years hence would see a remarkable exodus of families from the city — that many flats, apartment houses and city residences would be abandoned for the more natural all year round life in the country — your prediction would have been scoffed at.

But this has become a fact — home-loving people want homes of their own, away from the noise of the city, and in a location easily accessible to the business engaged in by the head of the family. Whether it be a modest cottage or a pretentious residence, if located in the country the name “HOME” is applied with a more tender relation than any city abode can claim.

It is unnecessary to describe Long Island. Most of us know that its geographical location makes it healthful. The continuous layout of beautifully attractive developments within fifty miles distance, are the picture of contentment, each worthy of the name “HOMELAND.”

But even with all that has been said, printed and predicted for Long Island there are a few who have not investigated and whose imagination places great distance between Long Island and New York City — who do not realize how close, geographically, as well as in point of time this grand residence area is located.

Many transit improvements aggregating millions of dollars have been made by the Long Island Railroad, including its connection with the heart of New York City by tunnels under the East River and thus direct to Herald Square; the electrification of many of its lines, and the locating of its Brooklyn terminal so that connection is made with the New York Subway thereby more amply serving the downtown district of Manhattan. And as the result of these improvements this great homeland can now be reached in more comfort and in twenty minutes less time than heretofore.





Lowe Brothers

"High Standard" Paint Products
with the
"Little Blue Flag" on the Label
are your assurance of quality,
protection, artistic effect and
satisfaction.

"High Standard" for exteriors. "The Paint of Performance." Practically, and theoretically demonstrated in every section of the country to be a paint that "Gives Best Results."

"Mellotone" "Soft as the rainbow tint" finish for interior walls. Gives the soft restful, flat effects now in vogue. Combines water color beauty with oil paint wear. Economical, sanitary, fadeless and washable.

"Little Blue Flag" Varnish for every special building requirement, exterior or interior; "General Purpose" and "Durable Floor"—"the Varnishes of Efficiency."

"Linduro Enamel" for exteriors and interiors—the highest grade enamel made. Successfully withstands severe conditions. Approved by the leading architects.

"Oil Stain" a permanent, non-fading pigment stain. For use by practical painters on close grained wood and does not raise the grain of the wood. Produces mission effects. Eight durable and attractive colors.

"Concrete and Cement Coating" for exterior and interior concrete and cement surfaces. It is water-proof and alkali-proof. Has been thoroughly tested by severe experiments. Is a finish of highest efficiency.

A Reminder to send for booklets, color combinations, and other information on paint products for any surface. "Harmony in Colors," "Common Sense About Interiors," "Homes Attractive"—sent free upon request. Dealer-agents in the leading cities sell "High Standard" products.

The Lowe Brothers Company

Paintmakers—Varnishmakers

450-460 E. Third Street Dayton, Ohio

Boston—New York—Chicago—Kansas City

Lowe Brothers, Limited,
Toronto

Lowe Brothers
High Standard
Liquid Paint

Gives Best Results



MODERN GAS ILLUMINATION

The Welsbach Reflex Lamp, when supplied with genuine Welsbach mantles and fitted with the highly artistic globes now to be had is the only real modern gas illumination, and besides possessing all the advantages of any other illuminant, is far less expensive.

The Standard Reflex Lamp gives a perfectly steady light, burns about half the gas of an ordinary "tip," and gives from four to six times as much light.



A MODERN GAS FIXTURE—THE
"REFLEXOLIER"

are full strength and of the highest possible standard of quality. *Take no substitutes. See that the name "Welsbach" or "Reflex" is on the article or the package.*

A Department of Illuminating Engineering is maintained, whose services are at your disposal for technical or other advice in regard to modern gas illumination. There is absolutely no charge; simply make known your wants, or your problems, and you will receive a prompt and full answer to your question.

The Reflex Lamp requires no matches; you can have your choice of three different methods of lighting, two of which enable you to light and extinguish it from any convenient distant point as easily as turning on an electric switch; the other gives you a tiny night light, which enables you to see the lamps and the other objects in the room.

In artistic possibilities the Reflex Lamp is the peer of any light-source. Being so much cheaper than other light-sources more of the light can be used for purely artistic effects without making the cost excessive. There is no form of decorated glass-ware that cannot be applied to the Reflex Lamp; and as for fixtures, they can be just as artistic as you have a mind to pay for.

There are many imitations of the genuine Welsbach Reflex Lamps and mantles of a cheap, inferior grade, which are openly or covertly sold as "Welsbach." Especially avoid cheap mantles. The manufacturing cost of a mantle depends largely upon the amount of chemical which it contains. A mantle containing half the quantity will look the same as one having the full amount, even when first lighted; but it will not last. Genuine Welsbach mantles have the "Shield of Quality" trademark on the box, and



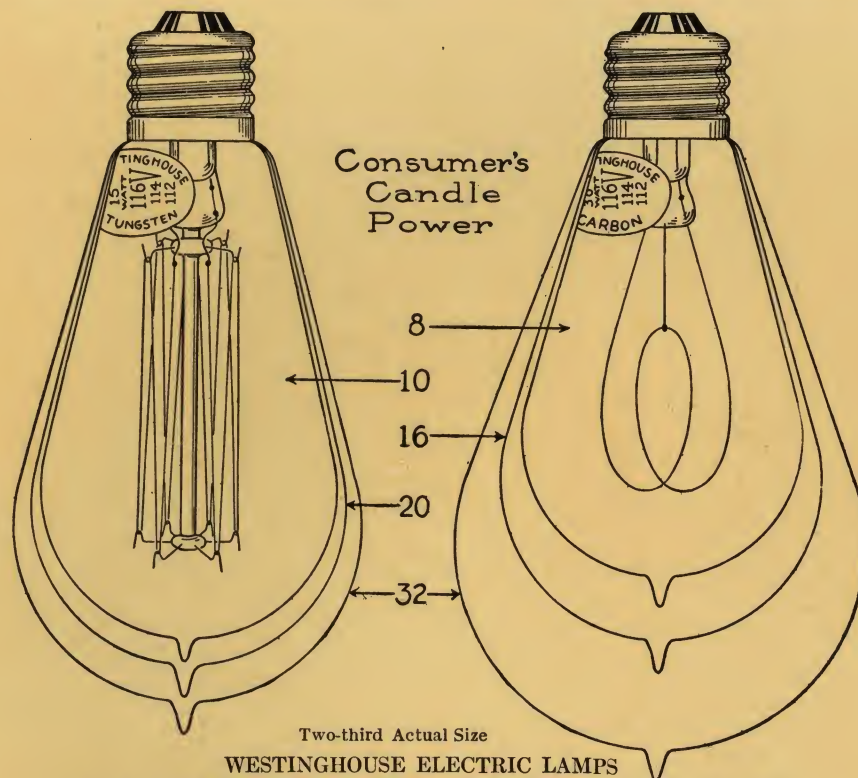
WELSBACK
REFLEX LAMP
(Catalog No. 244)

Welsbach Company

FACTORIES:

Gloucester, N. J.

Columbus, O.



Made by the Westinghouse Electric and Manufacturing Company, Bloomfield, N. J.

THE electric lamp has been wonderfully improved within the past few years. The Westinghouse Wire Type Tungsten lamp, which represents the very latest improvements, gives from two to three times as much light for a given amount of current as the ordinary (carbon filament) lamp. The sizes of lamps most commonly used in residence lighting are shown in the above diagrams.

As manufacturers now mark their lamps with the number of electric units (watts) which they consume instead of the light units (candle-power), which they give out, the following table, showing the relation between the watts and candle-power, will enable you to make the right selection for securing a required amount of light:

CARBON FILAMENT LAMPS

Lamps marked	25 to	30 watts give	8 c. p.
"	50 "	60 "	16 "
"	100 "	120 "	32 "

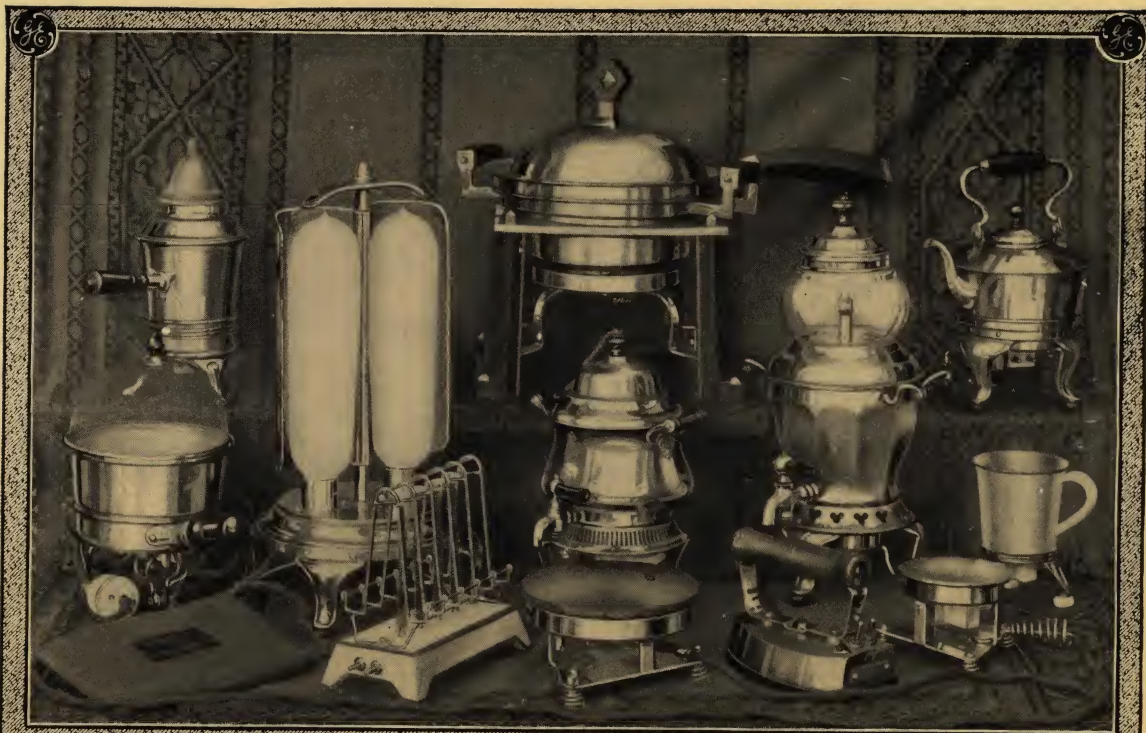
TUNGSTEN LAMPS

Lamps marked	15 watts give	10 c. p.
"	25 "	20 "
"	40 "	32 "

The watt is the unit used by the electric lighting companies in selling current, and hence by comparing the watts with the candle-power in the two types of lamps you will get their relative efficiencies. Thus, supposing electric current to cost 10c per unit, (which is a fairly good average), the 10 candle-power tungsten lamp can be used for one hour for one and a half mills, or six and two third hours for one cent. An 8 candle-power carbon lamp if used for six and two thirds hours will cost two cents. Tungsten lamps last on an average over 1000 hours. The saving in current of a 10 candle-power lamp during this time would amount to over \$1.50, at least three times the additional cost of the lamp. The saving is even greater with the other sizes.

Although the tungsten lamp costs more than the carbon filament lamp, its use is a decided economy. You can generally get Westinghouse Tungsten lamps from your lighting company on request. If your lighting company cannot supply them, you can get them from some reliable dealer in electrical supplies in your town. If you insist on having Westinghouse Wire Type Tungsten lamps, you will not only effect a large saving in your lighting bills but you will be assured of having a lamp giving the longest possible life and the best service.

If you are at all in doubt as to the proper size or kind of lamp best suited to the needs of your home or any special location, the Illuminating Engineering Department of the Westinghouse Electric & Mfg. Company, Bloomfield, N. J., will be glad to answer any questions and give you any information on the subject of electric lighting which you may desire. There is absolutely no charge or obligation attached to this service.



A group of G. E. heating devices made by the largest electrical manufacturer in the world. The pronounced success of these devices for practical everyday use is due mainly to the indestructible heating unit of "Calorite." This lasting alloy is exclusive to General Electric Company's heating devices.

GENERAL ELECTRIC COMPANY
SCHENECTADY NEW YORK

If your investment foresight is sound you
will build of

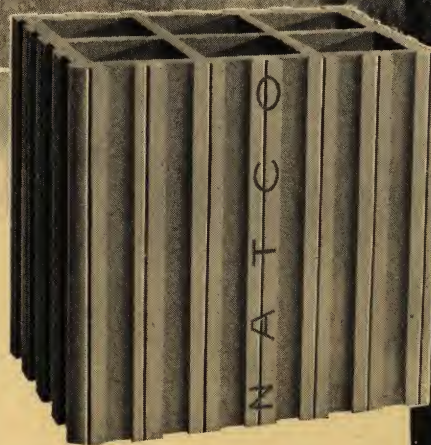
NATCO · HOLLOW · TILE

*Fireproof, age-proof, damp-proof, sound-
proof, warmer in winter, cooler in summer.*



NO other form of construction can
combine all these vital qualities.

That is why the country's leading archi-
tects are advocating NATCO HOLLOW
TILE construction—not only for them-
selves but for their clients—for residences,
apartment houses, clubs, hotels, garages,
schools, factories, stores and all moderate-
sized buildings.



Costs no more than brick, brick and wood,
stone and wood, or concrete. Eliminates the factor of deterioration.

It is inevitable that the NATCO HOLLOW TILE building will be
universally recognized through future years as of the most desirable
class, from both investment and living standpoint.

Do not build without full knowledge of this construction

Write for *Fireproof Houses*, our elaborate 96-page book, mailed
for 10 cents postage. Contains illustrations of numerous houses
costing from \$4000 to \$200,000; typical floor plans and full
explanatory details of NATCO HOLLOW TILE construction.

NATIONAL FIRE · PROOFING · COMPANY

Dept. W, PITTSBURGH, PA.

Organized 1889

Offices in all Principal Cities

*To avoid the substitution of inferior tile, it is important to specify that
every tile shall bear the word "NATCO" impressed in the clay.*

WHITTALL RUGS

THE unvarying accuracy and superior technical skill of Whittall textile methods have been applied in producing floor coverings unequalled for harmony of color, assortment of artistic patterns, choice of sizes and fastness of dyes at moderate expense.

The Whittall line includes the rug best suited for every conceivable purpose, from entrance hall to bathroom, for every scheme of decoration from the modest home to the pretentious mansion. There is the Anglo-Persian with its lustrous sheen — the most closely woven and finest of texture of any rug produced in America, — the high piled Arabic — the nearest approach to the Turkish type of rug — and two qualities of Brussels.

All Whittall pile fabrics made with worsted yarns are “three shot” weaves, the only method which “locks” firmly the thousands of minute “tufts” of yarn in a Wilton rug or carpet, and guarantees wearing qualities.

The finest masterpieces of Oriental color and design — priceless art treasures — are faithfully reproduced in Whittall Rugs, giving all the real beauty and charm of expensive Orientals at a tenth of the cost.

WHITTALL CARPETS

While rugs are becoming more generally used, carpets are still in favor in the house for hall and stair coverings, and for special purposes.

Whittall carpets are made in eleven grades and are exceptionally complete in their wide range of colors and patterns. The same high standards of Whittall Quality are maintained in our carpets as in our rugs.

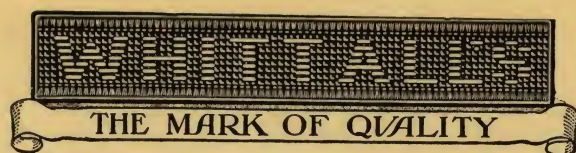
Whittall Carpets are in use in the leading public buildings of the country, the principal theatres, hotels, on Pullman Cars, etc., wherever handsome and durable carpets are required.

Our facilities and equipment for contract work of this nature are unlimited. Special designs, colorings and sizes will be made to suit any architectural or decorative scheme if desired.

The leading dealers in every locality carry an assortment of Whittall floor coverings, which are always sold at fixed and standard prices. Every rug and yard of carpet has the name “Whittall’s” woven in the back. Look for it. It is your guarantee of quality.

Our booklet, “Oriental Art in American Rugs,” contains descriptions of Oriental designs, with beautiful illustrations of their Whittall reproductions. It shows why the name “Whittall’s” woven in the back of the rug is recognized as the Mark of Quality. The book is free. May we send you a copy?

M. J. WHITTALL Dept. K. K. WORCESTER MASS.



Suggestions for Classification of Rugs to be used in various rooms, when colors, etc., are adapted to furnishings:

Parlors, Reception Rooms, Music Rooms

Aubusson	*Herati	Louis XV	*Persian	*Soumak
Byzantine	*Iran	Louis XVI	Prayer	Tabriz
*Gorevan	Kashan	l'Art Nouveau	*Saraband	Mission
Gothic	Kermanshah	Marie Antoinette	Saruk	French Cretonne
*Grecian	Khorassan	Moire	*Sehna	Dresden
Hamidieh	Kirman	Mosque	Shiraz	*Tapestry

*When made in light or medium colors

Living Rooms, Dining Rooms, Dens, Halls, Offices, Libraries

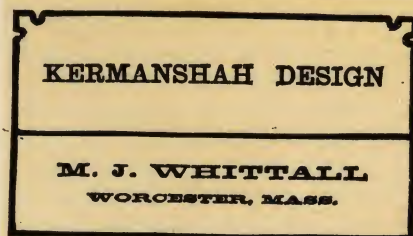
Bokhara	Gothic	Kazak	Oushak	Soumak
Arabian	Grecian	*Kermanshah	*Persian	*Shiraz
Beluchistan	Hamadan	*Khorassan	Saraband	Turkish
Daghestan	Herati	Medieval	Sehna	Mission
Djushghan	Iran	Moire	Shah Abbas	Mosaic
Ferraghan	Kabistan	Mosul	Shirban	*Tapestry
Gorevan	Kashan	Nomad		

*When made in dark colors

Chambers, Boudoirs

Aubusson	Kermanshah	Marie Antoinette	Mosque	Dresden
Byzantine	Louis XV	Prayer	Moire	*Persian
*Gothic	Louis XVI	Tabriz	French Cretonne	*Saruk
Hamidieh	l'Art Nouveau	*Mission		

*When colors are of delicate tones

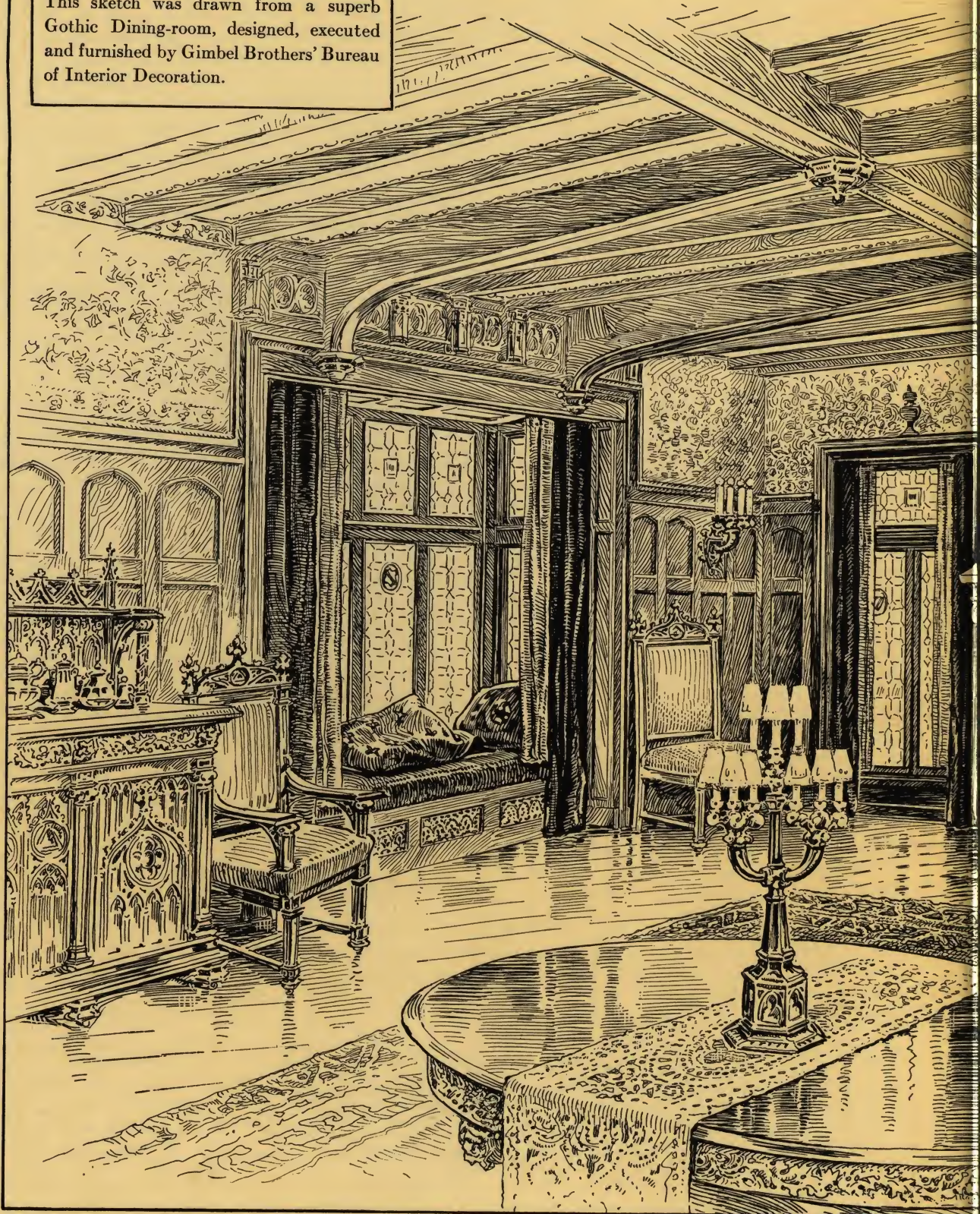


When choosing your rugs and carpets see that the name WHITTALL'S is woven in the back. It is your guarantee of quality and satisfaction.

The label reproduced here is attached to all WHITTALL rugs to assist you in identifying the type of design.

Refer to the above classification. See that your rug bears the proper label and, above all, the WHITTALL trademark woven in the back, and you cannot go wrong in the selection of floor coverings.

This sketch was drawn from a superb Gothic Dining-room, designed, executed and furnished by Gimbel Brothers' Bureau of Interior Decoration.





THE
GIMBEL ORGANIZATION
FOR
INTERIOR DECORATING
IS
WELL PREPARED

to submit sketches and materials for artistic Draperies, to be made to order in our own workrooms, or to carry out your own ideas in excellent fashion.

An interesting series of sections of rooms, with suggestions for draperies, wall papers and curtains, will be found of great helpfulness in making a choice.

Our direct importations of Wall Coverings, Draperies and Furniture Materials offer many exclusive and beautiful new designs.

An expert on decorations will gladly be sent to consult with you on your request.

The Gimbel stocks of Furniture, Carpets and Rugs are distinguished by the care with which they are selected, the breadth of variety and the general excellence in every grade.

This same liberality of choice and elegance of pattern is characteristic of Gimbel stocks of China, Crystal, Housewares and everything that goes to the furnishing of the home.

GIMBEL BROTHERS

NEW YORK

BROADWAY

THIRTY-THIRD ST.

Few persons, comparatively, appreciate the wide difference in the qualities of mahogany in the market today; or realize the superiority of the finest hand-workmanship over the best factory grades; or know the possibilities in finishing fine woods in such a way as to bring out the full beauty of their grains and colorings.

It is for these reasons that we submit this moderate-priced specimen of TOBEY HANDMADE FURNITURE in the hope that it may go into many American homes, and that by it we may have the opportunity of demonstrating what we believe to be the highest standard of furniture making the world has yet known. We are willing and anxious that your opinion of TOBEY HANDMADE FURNITURE shall rest

upon the comparison which this piece sustains with any other article of furniture in your home.

Attention is directed to other designs of TOBEY Handmade Furniture illustrated on page 82



Solid St. Jago Mahogany Reading Stand as illustrated — in Wood, Cabinet-Work and Finish a representative example of TOBEY HANDMADE FURNITURE. \$25.

THE TOBEY FURNITURE COMPANY

Eleven West Thirty-Second Street — NEW YORK CITY
Wabash Avenue and Washington Street — CHICAGO

Western Electric

TRADE MARK

HOUSEHOLD HELPS

COST LITTLE TO BUY — LESS TO OPERATE

There is a Western Electric answer for almost every household need. Electrically operated washing machines, vacuum cleaners, electric stoves, curling irons, coffee percolators, chafing dishes, toasters, etc.

Inter-phones

An interesting chapter on these time and trouble saving interior telephone systems will be found on pages 132-A to 132-D of this book.

Western Electric products are distributed everywhere through its distributing branches and thousands of retail supply dealers. If your dealer cannot supply you with Western Electric quality, write our nearest house and secure complete information, together with the name of our agent in your community.

WESTERN ELECTRIC COMPANY

Manufacturers of the 6,000,000 "Bell" Telephones

EVERY BELL TELEPHONE IS



A WESTERN ELECTRIC TELEPHONE

New York	Atlanta	St. Paul	Dallas	Los Angeles
Buffalo	Chicago	Milwaukee	Omaha	Seattle
Philadelphia	Indianapolis	Saint Louis	Oklahoma City	Salt Lake City
Boston	Cincinnati	Kansas City	San Francisco	Portland
Pittsburg	Minneapolis	Denver	Oakland	
Montreal	Toronto	Winnipeg	Vancouver	
Antwerp	Berlin	Paris	Johannesburg	Sydney
				Tokyo

Address the house nearest you.

EQUIPMENT FOR EVERY ELECTRICAL NEED

"SAVE TIME AND FREIGHT"



"TELEPHONE OUR NEAREST HOUSE"

